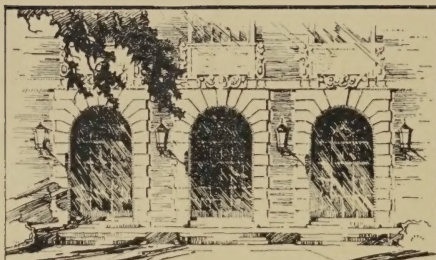


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BULLETIN

—OF THE—

Brooklyn Entomological
SOCIETY.



VOLUME I.

BROOKLYN, N. Y.

—0—

MAY 1878. F. G. SCHAUPP, EDITOR. APRIL 1879.

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BULLETIN

ENTOMOLOGICAL SOCIETY

18



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BULLETIN

—OF THE—

Brooklyn Entomological Society.

BROOKLYN MAY 1878.

No. 1.

In the year 1872 the Brooklyn Entomological Society was first organized, with only five members. This number has been constantly increasing, so that at the present date the success of the Society is assured. In the mean time it has acquired a large cabinet containing insects of the several orders, notably Coleoptera, and Lepidoptera, and a valuable collection of publications on Entomology, including some rare old works.

Since the first day of its organization, the Society has held its regular monthly meetings (on the first saturday of every month,) and these have on many occasions been of great interest. The members of the Society have long felt the necessity of having some channel for giving publicity to the many matters of interest which constantly occur at its meetings, and have at last concluded to issue a monthly Bulletin.

The contents of the Bulletin will be:

1. Useful hints for practical collecting, exact time and locality, food-plants, approved ways for setting traps, etc.
2. Report on the results of raising beetles in captivity, on their larval state, time of duration etc.
3. Notes on raising butterflies.
4. A list of new descriptions of N. A. Coleoptera & Lepidoptera also of the alteration in the nomenclature.
5. The 3d sheet of this publication is devoted to synoptic tables alternatively on Coleoptera, and Lepidoptera; it may be preserved separately and will form in due time a complete illustrated Catalogue of these orders of Insects.
6. The last pages are reserved for offers to exchange and advertisements of interest to Entomologists.

To partly defray the expenses of publication, the Bulletin will be issued at the low price of 50 cts. per annum payable in advance.

RAISING BEETLES IN CAPTIVITY.

Animals of all orders are raised now a days in captivity, from the most minute to the largest, even of those classes that require a large space for breeding, such as lions and elephants.

In the field of Entomology the lepidopterist knows the greater part of the larva of his pets, while the coleopterist is acquainted with but very few.

Why is this so ? Is it because it is so very difficult to rear them or is it because there have been so few workers in this department of Natural History.

Such thoughts agitated my mind two years ago, and I collected a number of our common *Cicindelas* viz. *vulgaris*, *repanda*, *12 guttata* and *hirticollis*. I made for them a box ($2 \times 1\frac{1}{2} \times 1$ foot) of wood, glass and woven wire such as used for wire screens, and filled it $\frac{1}{2}$ foot deep with sand making here and there a few miniature hills and in the middle of the box a valley, in which I placed a flat tin pan filled with water. At the two sides I placed pieces of green turf to represent a meadow.

I fed the *Cicindelas* with different soft larva, small *Chrysomelidæ* (*Crioceræ asparagi* & *Diabrotica*) etc. and kept them alive over two months. They copulated, dug holes in the sand, were running around during sunshine very lively till July 1., when I left for the country. After setting free the captive *cicindelas*, I could not detect any live thing in the box, but I did not consider my experiment a failure.

During the last winter, I as well as several other members of our Society made preparations for raising Insects from the egg more extensively. For this purpose we use boxes of zinc, the two longer sides and the cover of glass, the two smaller sides of wire-screen, and we are very much pleased with them. I already succeeded in obtaining larvæ from *Cucujus clavipes*. I feed the imagines and the larvæ with sugarwater, with which I soak small thin pieces of wood. The imagines were collected Jan. 15th. 1878.

I also have in breeding cages, *Carabus limbatus*, *Cychrus Lecontei*, *Galerita janus*, *Chlaenius aestivus*, several *Platyni*, *Cicindela 12 guttata*, etc.

Cychrus are fed on snails (*Patula alternata* Say) but they also very readily feed on soft larvæ of woodborers; *Carabus*, *Chlaenius* and *Galerita* are fed with veal, and it is very interesting to look at the 12 *Carabus limbatus*, (6 males & 6 female) while devouring the meat, tearing and lifting it, all standing around it like the members of a poultry yard around a trough.

Of *Cychrus Lecontei* I have 2 males and 1 female, and I saw them while feeding on a larva drive each other away from their prey. This was also seen by Mr. H. K. Morrison, when he lately paid me a visit. Besides the collecting I do not know of anything that gives more pleasure than to closely watch these little creatures, and I hope others will be induced to devote some of their time to this very interesting part of Entomology. It would afford me great pleasure, to receive any communications on this matter.

Schaupp.



Fig. 1.

LARVA OF DICAELUS DILATATUS.

AUG. 1. 1877 I found two larvae under a board in the wood and visited them every day until AUG. 6 when one of them was transformed into a pupa. I left it three days in the wood, then took it home, and put it into a bottle half filled with dry earth, wetting it daily with 3 or 4 drops of water.

AUG. 12. it was transformed into *Dicaelus dilatatus*. It remained two days white, the 3d day it became brown, and the legs and abdomen began to blacken; AUG. 15 it was all black. I fed the imago with flies, deprived of wings and in one instance it ate a large pupa of a *Lepidoptera* devouring in ten minutes its whole contents.

The larvae — see fig. 1 — is about 25 mm long; head red, thorax black, ventral segments yellowish white, each with a longitudinal black spot above, and beneath with 7 spots arranged as in fig. 1.a; the sides of each segment are also black, distinctly pointed. The anus is prolonged downwards, and the last segment is prolonged into two slender appendages.

Schaupp.

see Horn Description of the larva of the N. A. Cicindelidae also of *Dicaelus* etc. Trans. Am. Ent. Soc. VII. 1878. pag. 37.

SOME NOTES ON ARCTIA FIGURATA DRU.

In the early part of May 1877 I took at Brentwood L. I. a crippled female of *Arctia figurata* of which I succeeded in getting 25 eggs. In about two weeks most of these hatched and they fed readily on common dandelion. Altogether I had 15 larvae of which [July 5th] 13 were feeding. Of these the two first went underground July 8th and all of the rest but one soon followed. This one hibernated in larval state, spun up at the beginning of April 1878. The full grown larva is jet black, hairs very stiff, and the movement

of the caterpillar is very sluggish at this period. while in its earlier stages it is very lively. When touched it rolls itself up the same as most of the other arctians.

On July 22th four of the imagines made their appearance, all males, but what was my surprise to find instead of their secondaries being red (as were those of the parent moth) two were such, and the other two of a bright yellow.

Altogether I got out 11 specimens of which 8 were males, and 3 females. Of the males the secondaries of four were red (same as the parent moth) while those of the other four were orange yellow.

Each of the three females was of a different form. The secondaries of one were the usual red, the other had yellow secondaries, while those of the third were black, with only a small orange yellow mark of the shape of a V. In all the specimens I raised, the markings of the primaries showed hardly any variation. From this it would seem that but little reliance can be placed (as regards specific distinction) on the colors, and markings of the secondaries among the Arctians, while the primaries on the contrary seem to be constant. As an illustration of this take *Arctia virgo*, of which I have seen specimens with their secondaries of a bright yellow.

Judging by the figure in Stretch's *Zygaenidae* and *Bombycidae* of N. A. (pl. 9 fig. 6) *A. anna* Gr. seems to be a black var. of *A. Saundersii* or *A. persephone*; in fact the inconstancy of the color and markings of the secondaries once demonstrated the question arises, are not *A. Saundersii*, *A. persephone* and *A. anna* one and the same species?

A. phalerata we find similarly variable although I have my doubts whether we have not two distinct species labelled under this name. I would advise collectors when capturing the female of *A. phalerata*, or of any other species to try rearing from the egg, taking great care to keep the brood separate. By defining the different forms (if any) of the specimens derived from one and the same female we arrive at some positive proofs as to what constitutes a species, and this is itself of far more value than hosts of descriptions of new species from the imago only.

Arctians, as a rule are general feeders, and can be easily raised on common garden weeds, the radish and lettuce.

E. L. Graef.

CERURA MULTISCRIPTA, RILEY. — Larvae found on the upright Willow July 30th; a male imago emerged on August 30th and a female on Sept. 8th.

F. Tepper.



Synoptic table of the genus **OMOPHRON** Latr.

Mesosternum covered, scutellum wanting. Body round convex.

Dr. Horn Monogr. Trans. Am. Ent. Soc. III. 71 classifies them as follows:

Group 1. — Species broadly oval, shining, elytral striae almost entirely effaced at apex, and indistinct at the sides, median thoracic line scarcely evident.

Dark or nearly black, lateral margin of the thorax and elytra pale, the punctures of the striae become effaced at the middle also to —

wards the sides

1. **labiatum** —

Brilliantly green with narrow pale border. The striae are less deep, the punctures large and more distant, and extending fully $\frac{2}{3}$ the distance from base to apex. The punctures forming the lateral striae well defined.

2. **nitidum** —

Group 2. — Species less broadly oval, less convex and less shining, elytral striae attaining (very nearly) the apex, lateral striae as distinct as the discal.

Elytra, 14 — striate.

Striae deep, finely and closely punctured.

Striae moderate, punctures rather distant and obliterated at apex.

3. **gilae**

Striae faint, punctures large, distant

4. **obliteratum** —

Elytra, 15-striate.

5. **robustum**

Broadly oval

Punctures of elytral striae obliterated at apex.

6. **dentatum**

Punctures distinct at apex.

Lateral margin only, of thorax, pale.

7. **americanum** —

Lateral, basal and apical margins pale.

8. **tessellatum**

Elongate oval.

Elytral striae not deeply impressed, finely and closely punctured flat interspaces.

9. **ovale**. —

Dark species are Nos. 1. 2. 4. 7. 9; lighter Nos. 3. 5. 6. 8.

1. **Labiatum**. Fab. Syst. E. I. 248. Length, 6mm. Rare in the Middle, more common in the Southern States.
2. **nitidum**. Lec. An. Lyc. IV. 347. - **nitens** Chaud. Length, 5 - 6mm. Ill. Ks. Ind. Terr. La. Tex.
3. **gilae**. Lec. An. Lyc. V. 201. Length, 7mm. Arizona.
4. **obliteratum**. Horn, Trans. Am. Ent. Soc. III. 73. Length, 7mm. Arizona.
5. **robustum**. Horn, Trans. Am. Ent. Soc. III. 74. Length, 6.5mm. N. Scotia.
6. **dentatum**. Lec. An. Lyc. V. 200. Length, 7mm. Arizona.
7. **americanum**. Dej. Spec. V. 583. Length, 6 - 7mm, Can. East, Middle and Western States.
8. **tessellatum**. Say, Journ. Ac. III. 52. Length, 6 - 7mm. Can. Middle States.
9. **ovale**. Horn, Trans. Am. Ent. Soc. III. 75. Length, 6.5mm. Cal.

The species are found in wet sand, near brooks, rivers or ponds, under stones, chippings or in holes between the roots of plants. By pouring water over the banks, they are driven out and try to save themselves on the higher parts of the banks, and are so easily captured.



Synoptic table of the genus **ELAPHRUS** Latr.

Crotch. Syn. table. Trans. Am. Ent. Soc. V. 246.

Bronzed and metallic; eyes large and prominent, the elytra with rows of large, shallow round foveae,

Anterior tarsi of male with four dilated joints; thorax sparingly punctate.

Elytra smooth impunctate.

Thorax beneath coarsely and sparsely punctate.

Thorax beneath finely and more densely punctate.

Legs piceous

Legs pale

Elytra and thorax sparsely and coarsely punctate

Elytra and thorax sparsely and lightly punctate,
foveae feebly impressed.

Elytra punctate at sides, disc smooth. Thorax
evidently punctate.

Anterior tarsi of male with 3 joints dilated. Thorax and
elytra very closely and finely punctate.

Thorax finely and closely punctate, beneath.

Thorax broad, transverse, abruptly coarctate

Thorax cordate

Thorax broad, sides subangulate; beneath at the sides rather sparsely
punctured; intervals smooth; color above brilliantly green; elytra
without ocellate foveae

Thorax, beneath, sparsely, not deeply punctured;
thorax narrow, legs entirely pale.

Thorax coarsely punctate beneath, shining

1. **Clairvillei**

2. **Laevigatus**

3. **Olivaceus**

4. **Cicatricosus**

5. **Ohliteratus**

6. **Fuliginosus**

7. **Lecontei**

8. **Riparius**

9. **Viridis**

10. **Pallipes**

11. **Ruscarius**

1. *Clairvillei*, Kirby - (*politus* Lec. Agass. Lake Sup. 209.) *Fauna bor. IV.* 63,
length 8 mm. Can. N. Y.

2. *laevigatus*, Lec. An. Lyc. V. 200 length, 7.5 - 8.5 mm. Mich. Brit. Col.

3. *olivaceus*, Lec. n. sp. I. 1. length 6.5 mm. N. Y. Catskills.

4. *cicatricosus*, Lec. An. Lyc. IV. 348. length 7 mm. Can.

5. *obliteratus*, Mann. Bull. Mosc. III. 117.-? *Obscurior kirby* - small - length 9.5 *Alas.*

6. *fuliginosus*, Say. Am. Phil. IV. 414. — *Clairvillei* Lec. length 8 mm. Wisc.
N. Y. Nebr.

7. *Lecontei*, Crotch - *intermedius*. Lec. An. Lyc. IV. 448. length 7 mm Utah.

8. *riparius* Lin, Faun. Lucc. Nr 749. - *intermedius*. Kirb. - *Californicus* *Mex.*
gradicosus *Mann.* - *similis* *Lec.* - *punctatissimus* *Lec.* length 7 mm Cal. Alaska, Europe

9. *viridis*. Horn, Trans. Am. Ent. Soc. VII. 52 (1878) length 5.5 mm. Calif.

10. *pallipes*, Horn. Trans. Am. Ent. Soc. VII. 51 (1878) length 6 mm. Or. Bri. Col.

11. *ruscarius*, Say. Trans. Am. Phil. IV. 417. length 6 mm. East, Middle & West.

The species of this genus resemble *Cicindela* in form and *Bembidium* in habits,
they are found running on mudflats near streams or pools, during sunshine
and hiding under plants at other times.

Sp.

GORTYNA NEBRIS. *Guén.* var. *G. nitela* *Guén.*

From the fact that the larvae of these two ? species are found together in the stem of the same plant (wild parsnip) at the same time, and that the chrysalids of each disclose at the same time (October and beginning of November) I regard them only as varieties of one and the same species.

Since making this observation I have had in copulation *G. nebris* m. with *G. nitela* f. and also *G. nebris* f. with *G. nitela* m. al though there were at the time unoccupied of both forms in the same breeding cage.

Both species are remarkably alike, and are only distinguishable by the presence of the bright yellow spots on the primaries of *nebris*. In a closely allied species *Hydroecia nictitans* we have almost the same variation and we can not attach much importance to this fact. The synonymy reads therefore;

GORTYNA NEBRIS *Guén.* var. **G. NITELA,** *Guén.*

Edw. Graef.

IN COLLECTING SILPHIDAE instead of trusting to the occasional finding of carrion, I invest a few cents at the butchers for a couple pounds of poor meat, chop it up and place it under stones, small boards etc. The first days I find there Carabidae (Carabus, Pterostichus, Platynus) and then Necrophori, Silphae, and Staphilinidae. I think this way makes the collecting of such specimens far less disgusting and unpleasant.

Schaupp.

When the cherries on the trees become rotten, swarms of Elateridae come at dusk flying from all sides toward them. I captured several species: *Asaphes memnonius*, *Melanotus communis*, *Cupes concolor*, etc.

A good way to collect coprophagus coleoptera

(Hister, Aphodius etc. also Staphilinidae) is to shovel the dung of cows, horses, sheep, etc. into a pail of water, * the dung sinks and in a few moments the insects living in it, come up clean and nice and are easily captured, while swimming around in the water.

The working with a pail of water is easily done especially when living on a farm for a time, simply by carrying half a pail full of water around in the pasture.

* If there is a slowly running brook near, shovel the dung into it.

D. S. YEOMAN.

AINSLIE STR. COR. OF NINTH STR.

BROOKLYN, E. D. N. Y.

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- imperfecta Lec.	- Ridingsii Bl.
- blanda Lec.	- tuberculatus Harr.
- lemniscata Lec.	- angulatus Harr.
- nevadica Lec.	- rugiceps Horn.
- striga Lec.	- dessolatus Schaum.
Nomaretus, debilis Lec.	- obliquus Lec.
- fissicollis Lec.	- cordata Lec.
- bilobus Say.	- subtilis Schaum.

BULLETIN

— OF THE —

Brooklyn Entomological Society.

BROOKLYN JUNE 1878.

No. 2.

ON SOME SPECIES OF NOCTUIDAE COMMON TO NORTH AMERICA AND EUROPE.

AGROTIS OBELISCA *H. Sch.*

" OBELISCOIDES *Guen.*

" SEXATILIS *Grote.*

Of *Agrotis obeliscoides* (*sexatilis*) I took a number of specimens in Sullivan Co. N. Y. and found two forms, differing from each other only in one (*sexatilis*) having the interior margins of its primaries more conspicuously powdered with light gray.

The other form is the same as the European *obelisca*. Lederer in (*Noctuinen Europa's* pag. 221) states: "like *A. tritici* and *A. aquilina*, which undergo all shades of coloration from dull brownish gray and undistinctly marked specimens to violet brown and distinctly marked with and without the lighter dotted (powdered) margin, - so also varies *A. obelisca*." — *A. sexatilis* is the variety of *obeliscoides* with the interior margins of its anteriors powdered with light gray - *obeliscoides* is like *obelisca*, consequently they are one and the same species.

HADENA BASILINEA *Linn.*

" FINITIMA *Grote.*

My specimens of *H. finitima* are identical with *H. basilinea* of Europe. I at first supposed the reddish brown patch in the middle of the anteriors of *finitima* was constant but I have now specimens with out this distinguishing mark, otherwise the two species are alike.

CHARICLEA UMBRA *Hufn.*

PYRRHIA EXPRIMENS *Walk.*

On comparing specimens of *C. umbra* received from Europe with *P. exprimens* I could find no difference in coloration or marking. The European specimens were somewhat smaller.

CALOCAMPA SOLODAGINIS *Hub.*

" GERMANA *Morr.*

LITHOMIA " *Grote.*

Specimens of *C. germana* received last year from Albany N. Y. proved identical with *C. solodaginis* of Europe. I am inclined to the opinion that this is an imported species. It has been known but a short time, although it is quite common now in Albany. It is not likely that this species would have escaped the attention of such industrious collectors as Mess. Meske, Lintner and Hill until the last few years, if it were a native and to the manor born.

That a number of species of coleoptera and lepidoptera are brought to our shores from foreign countries through the channels of commerce is certain. A friend of mine who imported willows from Germany and France told me, he often found strange beetles and moths in his loft where the willows were stored. This was in the busy part of New York where no vegetation was near to afford sustenance to any native species.

XYLINA INGRICA *H. Sch.*

" PEXATA *Grote.*

On comparing *X. pexata* with the European *X. ingrica* I find them to be identical.

There is no doubt when our Lepidopterists become better acquainted with the European Noctuidæ we will find a great number of species which are common to both continents and are known here under different specific and generic names.

Edw. L. Graef.

Larva of *Notodonta stragula*, *Grote*, found at Greenwood N. Y. on Poplar July 4th - ♂ imago emerged on July 27.

F. Tepper.

We present herewith a part of a paper on *Cicindelidæ*, read before the Society by *F. G. Schaupp* at the Meeting March 2. 1878.

Our next number will contain a Synopsis of the *Papilionidæ* by *F. Tepper*.

AMBLYCHILA, Say.

(Greek: amblys—obtuse, and cheilos—labrum.)

A. cylindriformis, Say, (tab. 1, fig. 1.)—Black, elytra brown; head large, eyes small; labial palpi shorter than maxillary, with the first joint concealed under the mentum, the third and fourth elongate; mandibles with 3 teeth; labrum bidentate at middle; thorax and underside smooth; elytra oval with three carinae at each side and irregular, unequal punctures; legs long and robust; tarsi short. Wingless.

Length 35—38 mm.

♂.—Hind trochanters acute with two grooves; dense yellow brushes near the two tibial spurs of the middle legs; last ventral segment broadly rounded with large setigerous punctures on each side of the middle; pygidium small.

♀.—Hind trochanters shorter, oval, obtuse at tip; last ventral segment somewhat prominent in middle, and sinuate at each side, with a feeble median longitudinal impression; pygidium very large.

The larva, (tab. 1, fig. 13,) has been recently fully described by Dr. G. H. Horn, Trans. Am. Ent. Soc. vii, p. 29.—It is yellowish-white, head and thorax scute castaneous, differs by the number of eyes (but two) and the length of the joints of antennae and palpi from the larvæ of *Omus*, *Tetracha* and *Cicindela*.

Antennae with joint two nearly equal to all the others combined; maxillary palpi with the first joint longest, third shortest.

Length 32 mm, in normal position; 44.5 mm, when extended.

Since the time of its description by Say, (1823) this insect has been very rare, but during the last two years it has been found quite abundantly in Kansas by Messrs. H. A. Brous, Prof. F. H. Snow, and by my friend George T. Cooper, who has kindly sent me specimens.

It lives in holes made in the clayey banks of ravines, is nocturnal in its habits, and moves around in a peculiar way, raising its body very high and keeping its antennae in constant motion. Its sight is very poor.

Habitat.—Western Kansas, Colorado, Arkansas, Indian Territory, N. M., and Eastern Arizona, Texas. June, July, August.

Say, Journ. Ac. Phil., iii, p. 139; Trans. Am. Phil., new ser., iv, 409, emend.; Thoms., Mon. p. 14, table 3, fig. 3.—Lec. Col. of Kans., p. 1, table 2, fig. 1; Horn, Trans. Am. Ent. Soc., v, 233, (on sexual characters, etc); Trans. Am. Ent. Soc., vii, 28 on the larva.

Amblychila Piccolomini, Reiche, Ann. Fr. 1839, p. 560, table 19, fig. 1—6; is merely a smoother *A. cylindriformis*, and although said by Reiche to come from California, it is not from that State. In describing *Pasimachus californicus*, Chaudoir says: "*C'est le même voyageur qui a rapporté l'Amblychila Piccolomini*," etc. Now it is well-known that *P. californicus* is not a Californian insect, and the occurrence of this and the *Amblychila* together show conclusively that they were taken where these two species may occur together, namely, in Northern Texas.

OMUS, Esch.

(Omos—Cruel.)

Black, more or less opaque (1 submetallic), wingless, head nearly square, eyes small, palpi of equal length, the labial with the first joint very short, third long; antennæ inserted in front under a prolongation before the eyes; mandibles very long, acute, at the right side with two teeth, on the left with three; thorax somewhat flattened; elytra convex; legs stout, short.

♂.—Has the three joints of anterior tarsi dilated (more inwards) and densely spongy beneath; last ventral segment deeply emarginate at the middle.

♀.—Has the last ventral segment oval at tip and entire.

The larva, (tab. 1, fig. 14,) described by Dr. Horn, l. c., p. 31, is yellowish-white; head piceous; prothorax scute pale castaneous; has eight eyes, two pairs large, two pairs small; antennæ with the first three joints equal, fourth shorter; maxillary palpi with joints one and three equal, second shorter. Length in normal flexed position, 20 mm.

This genus is also nocturnal, found on the Pacific Slope from Vancouver Island to Monterey Co., California. They hide under pieces of wood and may easily be baited by placing finely chopped meat near small pieces of board, under which they can be found the next day.

Horn, Trans. Am. Ent. Soc., v. 284, (on sexual characters); Trans. Am. Ent. Soc., vii, 81, (description of the larva of *Omos Dejeanii*); Hy. Edwards, Psyche, i, 73, (on the localities and habits of *Omos*).

TABLE OF OMUS.

I.—Lateral margin of the thorax obliterated posteriorly, not attaining the basal margin.

Surface black.

Thoracic margin distinctly reflexed.

Elytra foveolate and opaque.....**Dejeanii.**

Elytra simply punctate and shining.....**Edwardsii.**

Thoracic margin extremely feeble.

Elytra rather irregularly punctate.....**Audouinii.**

Surface bronzed.

Elytra broadest near the apex, form nearly parallel...**submetallicus.**

II.—Lateral margin of the thorax attaining the basal margin.

Elytra moderately coarsely punctured.

Thorax nearly square.....**Hornii.**

Thorax narrowed behind, rugulose.....**californicus.**

Thorax narrowed behind, comparatively smooth.

Form robust, labrum bisinuate.....**sequoiarum.**

Form slender, labrum nearly truncate.....**Lecontei.**

Entire surface smooth, impunctured.....**laevis.**

This table has been prepared from notes furnished by Dr. Horn.

1. **O. Dejeanii**, Reiche, (tab. 1, fig. 2.)—Our largest species, easily distinguished by the deep irregular foveæ of the elytra. Length 15—20 mm.

Habitat.—Vancouver Island, Northern California, Oregon and Montana. April to July.

Reiche, Ann. Fr., 1833, p. 299, tab. 10, fig. 1; Thoms. Mon., p. 15, tab. 3, fig. 4; Leconte, P. R. R. Exp., 47 Par., p. 27, fig.; H. Edwards, Psyche, i, p. 73.

2. **O. Edwardsii**, Crotch, (tab. 1, fig. 3) —Resembles *Dejeanii*, but is without the foveæ, much smoother. Length 14—18 mm.

Habitat.—Lake Tahoe, Cal. June, August.

Crotch, Trans. Am. Ent. Soc., v, p. 73; H. Edwards, l. c.

3. **O. Audouinii**, Reiche, (tab. 1, fig. 4) —The thorax less deeply wrinkled, the disc and apical margin nearly smooth, and the punctures of the elytra more unequal. Length 13—18 mm.

Habitat.—Foot-hills and mountains of California, Oregon, Washington Territory and Vanc. Island. June to August.

Reiche, Ann. Fr., 1838, p. 300, tab. 10, fig. 2; Thoms. Mon., figs. 7, 8; Lec., P. R. R. Exp., p. 27; H. Edwards, l. c.

4. **O. submetallicus**, Horn, (tab. 1, fig. 5.) —A species very distinct by its bronze color, its more elongate and cylindrical form, and the shape of the elytra. Length 13.5 mm.

Habitat.—Eldorado Co., Cal. June.

Horn, Trans. Am. Ent. Soc., 1872, p.; Hy. Edwards, l. c.

5. **O. Hornii**, Lec., (tab. 1, fig. 6.) —Has the thorax less narrowed behind than any other species, elytra rather broadly ovate, much rounded at the sides. Length 16.5 mm.

Habitat.—Yosemite, Cal.

Lec., Trans. Am. Ent. Soc., v, p. 157; Hy. Edwards, l. c.

6. **O. californicus**, Eschh., (tab. 1, fig. 7.) —Has the thorax very deeply rugose, which looks therefore more opaque, and may by this character be easily distinguished. Length 14—16 mm.

Habitat.—California, west of Sierra Nevada, southwards to Monterey Co. Found near San Francisco by Hy. Edwards. April to May.

Eschh., Atl. 1, p. 4, tab. 4, fig. 1; Thoms., l. c., p. 16, table 3, figs. 5, 6; Lacordaire, Gen. Atl. i, tab. 1, fig. 1; Lec., P. R. R., p. 27; Hy. Edwards, l. c.

7. **O. sequoiarum**, Crotch, (tab. 1, fig. 8.) —Closely allied to *californicus*, but longer, broader and stouter; sides of thorax more rounded; elytra broader and more convex. Length, 18 mm.

Habitat.—Sierra Nevada near Calaveras, Cal. June to August.

Crotch, Trans. Am. Ent. Soc., v, p. 73.

8. **O. Lecontei**, Horn, (tab. 1, fig. 9.) —Easily known by the form of the elytra, having the greatest width in front of the middle, and behind this point becoming gradually narrower and less arcuate. Length 16 mm.

Habitat.—Near Monterey, also Mariposa, Cal. June, July.

Horn, Trans. Am. Ent. Soc., iv, p. 143.

9. **O. lævis**, Horn, (tab. 1, fig. 10.)—Differs from all the others of the genus in being almost entirely smooth and sub-opaque; the elytra are regularly oval, exhibiting a few almost obsolete punctures irregularly placed like the foveæ in *Dejeanii*. The whole surface is very finely alutaceous, causing the sub-opaque appearance. Length 17 mm.

Habitat.—High Sierras near the head waters of King's and Tule Rivers. June.

Horn, Proc. Ac. Nat. Soc., 1866, p. 394.

TETRACHA, Hope.

(Quadrifariam.)

Large, metallic green species which are winged but do not fly.

Head large, eyes circular, large; labial palpi longer than maxillary, with the first joint elongated; third joint of maxillary longer than the fourth; mandibles with four teeth; labrum without tooth; thorax broader than long; elytra subparallel, slightly convex, broader than the base of the thorax, deeply punctulate; scutellum not visible; a large triangular impression at the middle of the thorax.

♂.—Anterior tarsi dilated as in *Omus*; last ventral segment triangularly emarginate; tip of elytra subtruncate; sutural angle rectangular.

♀.—Last ventral segment broadly oval at tip; tip of each elytron rounded; sutural angle obliterated.

The larva, table 1, fig. 15, also described by Dr. Horn, l. c., p. 34, is yellowish-white; head and thorax corneous with metallic surface; the margin of the latter testaceous; has the eyes as in *Omus*. Antennæ with second joint longer than the first and equal to the two following together. Maxillary palpi with the second and third joints nearly equal, each slightly longer than the first. Length 17 mm.

This genus is represented in the United States by two species, which are also nocturnal in their habits. They hide during day-time under chips, and are found from Philadelphia southward in every Atlantic and Gulf State.

Tetracha carolina, Lin., table 1, fig. 11.—Light gold-green, tip of abdomen, apical lunule of the elytra, legs and antennæ luteous; thorax smooth; elytra coarsely punctured, at the middle purple and at the margin bright green. Length 20 mm.

Habitat.—Georgia, Louisiana, Florida, Texas and Lower California.

Lin., Syst. nat., ii, 1735, p. 657; Dej., Spec. i, p. 8; Thomson, l. c. p. 30; Horn, Trans. Am. Ent. Soc., v, p. 234, (sex. char.) About a dozen varieties of this species are described from Mexico, Cuba, Brazil, Chili, Peru.

Tetracha virginica, Lin., table 1, fig. 12.—Dark gold-green; last ventral segment and antennæ ferrugineous; thorax smooth; elytra much coarser punctured than *T. carolina*; broad lateral margin of thorax and elytra metallic-green, middle black; without lunule. Length 20—24 mm.

Habitat.—With the preceding, Texas, Louisiana, Florida, Nebraska, Pennsylvania.

Lin., Syst. T. ii, 1735, p. 657; Thoms., l. c., p. 41, tab. 7, fig. 7; Syn. virginata, Lin. Syst., (Gmelin) T. iv, p. 1922; Horn, Trans. Am. Ent. Soc., v, p. 234, (sexual characters).



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An excellent trap for small Silphidae, Catops, Col'n, etc. is made by putting a rabbits foot or any similar object in an ale bottle and burying it up to the mouth in earth. These small nocturnal species will in the pursuit of the odorgiving food fall into the bottle, from which they cannot escape.

Leconte.

This note, just communicated to us by Dr. Leconte is very welcome, as these little Silphidae always were scarce and very poorly represented in most collections.

On the sandy banks of the Delaware and its tributary the Callicoon River I collected large numbers of *Omopron* [72 and 73 Crotch's list] *Dyschirius* [224, 227] *Clivina* [261] *Schizogenius* [276] *Platynus*, *Tachys* [1127, 1129, 1145, 1148, 1156] *Bembidium* [1026, 1029a, 1034, 1035, 1036, 1037, 1042, 1057, 1090, 1095, 1096, 1110, 1116.] *Heterocerus* and other small species, by pouring water over the small holes in the sand and on the plants growing at the edge of the water. Very often I saw them running out of their retreats by the hundreds.

In this way during one hour one may secure a large quantity. *Clivina* and *Dyschirius* are in the holes in the sand, *Omopron* and *Heterocerus* under the plants, the rest are found under the small stones on the banks.

Schaupp.

COLEOPTEROUS LARVAE OF TENEBRIONIDAE

IN GENERAL.

In studying the larval states of *Tenebrionidae* we find that there is scarcely a coleopterous family whose members are homologically so closely allied and correlatively alike, that I venture to say they are all retraceable to scarcely three typical larval forms.

The first type comprises that of *Tenebrio* [*Tenebrionellus* Cr.] — having homogenous corneous segments of cylindrical string-shape, the stigmata are situated under the overlapping tergal fold [in what Lacaze Duthiers calls the Pleurites] .

The second type comprises that of *Boletophagus* & *Boletotherus* - a more compact form with only the prothoracic segment corneous and abdominal segments slightly arcuate. The dorsal segments do not overlap, forming a marginal bead [wulst], above which [on the tergal part of the segment] the abdominal stigmata are situated.

The third type comprises that of *Pentaphyllus*. Clypeus not entirely separated, mandibles more strongly dentate, terminal joint of labial palpi large and truncate, pygidium without penicilli.

(Hesse)

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BULLETIN.
—OF THE—
Brooklyn Entomological Society.

BROOKLYN, JULY 1878.

No. 3.

PRACTICAL HINTS ON COLLECTING COLEOPTERA.

BY H. SCHMELTER.

How do you capture beetles? is a question so often addressed to a collector, that I do not think it out of place to discuss it at length in our Bulletin. The beginner who is not so fortunate as to be in position to profit by the experience of an older collector, will surely find some points of interest, and the latter will, I hope, be induced by it, to communicate his individual observations on the habits and hiding-places of coleoptera.

The proper choice of a locality for collecting is a point of first importance. It is true that insects are found everywhere, but like all the rest of the animal world their existence is more or less dependent on water.

Scarcity of water in a region is synonymous with scarcity of insect life, and the collector can save much time and be spared much discouraging experience by a knowledge of this fact.

Beetles are to be found at all seasons of the year. Many species hibernate in mature form, hidden under loose bark, or under moss at the foot of trees, under the dried leaves which cover the ground, or in the earth, under stones, etc. An excellent mode of capturing beetles of smaller size is the sifting of mouldering leaves, which is equally remunerative at all times. The leaves should be taken from hollows in the ground, where they form thick layers, and especially from places near the borders of woods.

The sieve I use consists of a wire ring of about one foot in diameter, to which a bag of coarse muslin of about the same length is sewed, the bottom of which is formed of a piece of brass wire-cloth of about 10 inches diameter, and with about 5 mm. square spaces. The sifting could be done over a sheet of white muslin or paper, or better, by placing the sieve into a bag of 1½ feet length fastened to a ring equal to that of the sieve. The sifted

matter will fall into the outer bag, and can be examined whenever convenient. In this manner I have captured many interesting species: *Staphilinidae*, *Trichopterygidae*, *Pselaphidae*, *Lathridiidae*, *Nitidulidae*, which by no other means would have come under observation. The best time for this kind of collecting is in winter, when no snow is on the ground, and late in fall, but may also be employed at any time of the year with good results. On warm pleasant days towards the close of winter (end of February and March), searching under stones will prove very successful, as the insects which have passed the winter in torpid state in the earth under stones, will now come to the surface. Good places are the sides of hills sloping towards the East. An excellent locality in this neighbourhood is the chain of hills on the right bank of the Hudson River (the first slopes of the Palisades), in the rear of Jersey City and Hoboken. The foot of these hills, which are bordered by swamps, is especially rich in insect life at this season, and nearly every stone which is upturned discloses a little colony of them. This is the only locality about New York where *Oodes fluvialis* Lec., *americanus* Dej., *amaroides* Dej., *Diplochila laticollis* Lec. and *Chlaenius niger* Rand are found, not to mention the multitudes of other *Carabidae*, *Staphilinidae*, *Hydrophilidae* etc. which there abound. But later in spring these places are entirely deserted.

(To be continued.)

ON COLEOPTEROUS LARVAE OF THE FAMILY TENEBRIONIDAE.

During the months of May and June 1877 numerous live specimens of Tenebrionidae were sent to me by mail from Monterey Co., California. They comprised several species of the genera *Asida* and *Eneodes* the former of which died after a few weeks, but the latter I have still caged (May 1878). In October I noticed the first eggs in the cage of *Eneodes gigantea*. The chorion of the egg is a structureless elastic membrane, its color milk-white and its form oval elongate

Length: 0.8 mm. breadth: 0.35 mm. To find out the medium in which to incubate them was a matter of great difficulty, since, when kept dry, they dried and shrunk, or when kept damp, they were destroyed by a mould.

November 20th 1877 I noticed the first larvae. After about 10th of December 1877 no more larvae appeared even under the most favorable circumstances. The few individuals thus obtained devoured each other* or gradually died before they reached the length of a few millimeters.

* I often noticed that larvae of *Tenebrio obscurus* eat their chrysalids.

Of the nine pairs of stigmata the first is situated near the anterior margin of the mesothoracic fold, the other eight pairs are on the pleurites [see Bulletin No. 2 page 11] of the first eight abdominal segments. Ventral part of ninth segment consists of two slightly protruding fleshy propellers.

Larval State of *Eleodes Gigantea*.

Head convex above, gular region concave; all the mouth-parts



Fig. 4.

Fig. 4. A, Larva of *Eleodes gigantea*. E, anterior leg, C, gula, mentum, ligula and labial palpi, D, antenna. B, middle and posterior leg. F, pygidium, acetic ac. prep., powerfully magnified, left side omitted. G, three last segments (lateral view), anus, pygidium and propellers.

Fig. 5. A, pygidium of *Eleodes dentipes* [7 mm. long larva], magnified; about 4 weeks old. b, anterior leg, magnified. Coxa and trochanter each with two blunt teeth, trochanter with two penicilli near tip, and femur with four penicillia at middle. Simple claw with rudimentary median fissure at tip and one penicillus at middle.



Fig. 5.

Larval State of *Eleod. Dentipes*.

Head and mouth-parts, antennae, middle and posterior legs alike as in *El. gigantea*. It differs by the pygidium having but ten penicilli, the two terminal are slightly longer and run parallel over terminal tip; and also by the form of the anterior leg.

It is remarkable to state that larvæ of but a few hours age have two small blunt terminal penicilli, at the side of which are two stout long bristles, but without lateral penicilli. The latter will appear after the first moult. Length 2-5 mm.

A number of *Eleodes dentipes* began to deposit their eggs in April, 78 and the larvæ have now the length of 30 to 35 mm. I keep them in a breeding jar with earth and decayed wood.

Cychnus feed on snails, I collected several *C. viduus* which were just feeding on a very flat species of snail (*Patula alternata* Say), having the head and a great part of the thorax concealed in the shell. That induced me to collect those species of snails, which live under rotten stumps and logs, and I placed them under pieces of board in numbers, and was always paid for my trouble. But as the snails sometimes moved away, I bored a small hole in the shell near its mouth and fastened them with a pin under the boards. Some years I captured in this way 15 and more Cychnus (*viduus*, *Lecontei* and *canad.*).

SCHAUPP

The Red Maple trees (*Acer rubrum*, *Marsh*) in Dayton, Ohio, were greatly infested by *Trochilium aceris* Clemens, in consequence a large number of those shade trees are dead or dying.

G. R. PILATE.

By placing tared ropes around the trunks of the infested trees, by protecting the insectivorous birds or by introducing the sparrow, the ravages of such insects may be prevented.

C. FUCHS

The best collecting ground I discovered is a little wood, about 10 acres, near North Branch, Sullivan Co. N. Y. I have visited this locality for the last six years and have found there many rare and valuable species, among which were *Cychnus viduus* and *canadensis*, *Calathus impunctatus* x, *Platynus angustatus* x, *Pterost. rostratus*, *adoxus* and *honestus*, *Myas coracinus*, *Dicaelus dilatatus* x, *Phymaphora pulchella*, *Mycetina perpulchra* x, *Mycotretus pulcher*, *Clinidium conjugens* x, *Dorcus parallelus*, *Ceruchus piceus*, *Osmoderma eremicola*, *Cupes capitata* and *concolor*, *Limonius aurifer*, *Tragosoma Harrisii*, *Bellamira scalaris*, *Leptura canadensis* x, *erythroptera* and *subhamata*, *Toxonotus Schaumii*, *Phelopsis obcordata* x, *Bolitotherus bifurcus* x, *Bolitophagus corticola* x, and *depressus*, *Pomphopea Sayi*, *Capnochroa fuliginosa* x, *Androchirus fucipes*, etc. etc.

At the nearest Station of the Erie R. R. Callicoon, I found *Cicindela marginipennis*, *Patrobus rugicollis* and many *Bembidium*. etc.

My friend Schmelter and myself prepared a list of the species found there numbering nearly 600, which will be published later in the Bulletin.

Several members of our Society Mess. E. Groh, H. Schmelter, E. Graef, F. Tepper, J. Mayer who spent their vacation there, were well pleased with the results of their collectings.

--- I shall be very happy to meet any collector there during the present summer July 5th-8 pt. 1st. The Postmaster in Callicoon will furnish my direction.

SCHAUPP.

SYNOPTIC TABLE OF THE GENUS PAPILIO, LIN.

Head large; eyes prominent; palpi very short, joints scarcely distinct; antennæ elongate, club pyriform; body more or less hairy, free from the wings; wings robust, borders more or less dentated, generally terminated by one or more tails.

The Papilios of North America may be divided into two groups:

* I. with tails—type *Turnus*, Linn.

* II. without tails—type *Polydamas*, Linn.

Group * I may be divided in:

A.—Ground color of wings yellow with black markings.

1. *P. Turnus*, Linn. bright yellow with black borders and markings; ♂ with large blue lunules on the secondaries, expands 3 to 4 inches.—U. S. East of the Rocky Mountains. Black ♂ variety *Glaucus*, Linn. more common in the Southern States.

2. *P. Rutulus*, B'dv. General appearance of *P. Turnus*, but usually smaller. May be distinguished by its having the yellow band which runs along the posterior margin on the underside of the primaries unbroken, while in *Turnus* it is disconnected.—Pacific States.

3. *P. Eurymedon*, B'dv. Pale yellow; black markings heavier; size same as *Rutulus*.—California to British Columbia.



FIG. 5.

4. *P. Daunus*, B'dv. Bright yellow; black markings and border slighter than in *Turnus*; double tailed; size same, or larger than *Turnus*.—Arizona to Montana, Oregon.

5. *P. Pilemnus*, B'dv. Very close to the above, but somewhat smaller, and the black markings heavier. Three tailed.—Arizona. New Mexico.

6. *P. Ajax*, Linn. Pale yellow, with black border and markings; anal spot red and double, expands two, to two and one-half inches.—Southern States.

Var: *Marcellus*, B'dv. Slightly larger than the above and more heavily marked; tails longer; anal spot red, single.—Southern States.

7. *P. Zolicaon*, B'dv. Bright yellow; black border with yellow lunules; interior margin wide and black; veins prominently black; anal spot red, expands two and one-half inches.—Pacific States.

B.— Ground color black with yellow markings.

8. P. Asterius, Fabr. Wings black with two rows of macular yellow bands; anal eye red with a black spot. Posteriors with blue lunules between the yellow bands, larger in the ♀. The yellow bands in the ♂ are much heavier than in the ♀, expands two and one-half to three inches.—U. S.

Var: *asteroides, Reak.* Like the above, but the ♀ has the yellow bands on primaries as heavy as in the ♂, size same as *asterius*.—U. S.

Var: *Brevicauda, Saund.* Northern form of *Asterius*, the ♀ however has the yellow bands heavier than the ♂; tails slightly shorter; size somewhat smaller than *Asterius*. Anticosti.—New Foundland, Quebec.

Var: *Culverleyi, Grote.* Wings basal ground black, the outer half bright yellow, inclining to orange on the posteriors, a narrow black marginal band. Size same as *Asterius*. Only two specimens known, one ♂ taken on Long Island, and one ♀ in Florida.

9. P. Americus, Koll. Closely allied to *Asterius*. Wings black, with wide deep yellow bands, much broader in secondaries; anal eye like in *Asterius*. The yellow bands on underside are broader and bordered with bright orange. Size same as *Brevicauda*. Southern California.

10. P. Indra, Reak. Ground-color black with a band of pale yellow spots; marginal spots on primaries and lunules along the margin of the secondaries also pale yellow; anal eye same as in *Asterius*, to which it is closely allied.

The main difference is in the body, which is perfectly black with slight yellow markings on the anal segment, while *Asterius* has four rows of yellow spots on the abdomen. Size of *Brevicauda*. Colorado, Nevada.

11. P. Troilus, Linn. Wings black; primaries with a marginal row of pale yellow spots; secondaries with greenish lunules along the margin, the upper one partly orange, above these lunules in the male a wide green band, in the ♀ this band is blue; anal spot orange; tails broad and black. Size 3 to 4 inches.—U. S.

12. P. Palamedes, Drury. Wings black with a yellow band on primaries and secondaries. Along the outer edge of primaries a row of yellow spots, and of secondaries a row of yellow lunules. Anal spot with a bluish crescent, tails black with a yellow ray in the middle. Expands three and a half to four inches.—Southern States.

13. P. Chresphontes, Cram. Wings black with a yellow macular band on primaries and 4 yellow lunules near the inner angle. Secondaries also with a yellow band and 6 or 7 yellow lunules, the anal spot has an orange crescent, blue above, tails black with a yellow spot. Expands 4 to 5 inches.—Southern States.

14. P. Philenor, Linn. Wings black with a greenish reflection, primaries sometimes with a row of whitish spots along the outer margin. Secondaries have a row of 6 white lunules, tails black, under side of the secondaries have 7 large bright orange lunules, surrounded with black. Expands three to three and a half inches.—U. S.

NEW PUBLICATIONS.

The Coleoptera of the Alpine Regions of the Rocky Mts.
(Haydens U. S. Survey, Washington May, 1878.)—Contents:

BY JOHN L. LECONTE, M. D.

Description of the new species; *Pterostichus* [*Cryobius*] *surgens*;— *Platynus jejunus*, [with a table of the subgenus *Rhadine*];— *Amarra* [*Curtonotus*] *cylindrica*;— *Harpalus clandestinus*;— *Bembidion* *Bowditchii*, B. Scudder;— *Hydroporus congruus*, *Gaurodytes nanus*;— *Geodromicus ovipennis*, *Orobaneus simulator* n. g. and n. sp.;— *Scymnus nigripennis*;— *Aphodius bidens*, A. duplex, A. obtusus, A. cribratus, A. anthracinus, A. brevicollis, A. marginatus, A. phaeopterus, A. cruentatus, A. subtruncatus, A. scabriceps, A. explanatus, A. rudis, A. sparsus, A. humeralis— *Anthaxia deleta*, *Chrysobothris carinipennis*;— *Corymbites planulus*;— *Podabrus brevipennis*;— *Melyris atra*, M. flavipes;— *Crossidius Allgewahri*, *Neoclytus ascendens*;— *Glyptoscelis longior*, *Chrysomela montivagans*;— *Magdalis alutacea*; also:

A list of coleoptera collected, by Mr. F. C. Bowditch in the Rocky Mts. at an elevation of 6000 feet and upwards.

List of species peculiar to the Mountain Region.

List of coleoptera collected at Atalanta, Idaho, (7800') by Mr. L. Allgewahr.

On the North American Species of *Nebria*; with a table showing the resemblance between the species, and a description of the new species; *Nebria ovipennis*, *N. purpurata*, *N. trifaria*, *N. longula*, *N. obtusa*.

**Revision of the Bostrichidae and Synopsis of the
 Colydiidae of the U. S.**

BY GEO. H. HORN, M. D.

[*Proc. Am. Phil. Soc.* 1878 vol. XVII page 549—592.]

Describes the new species: *Sinoxylon texanum*, S. *dinoderoides*, S. *bidentatum*, S. *suturale*;— *Tetrapriocera Schwarzii*, n. g. and n. sp.;— *Bostrichus californicus*;— *Amphicerus teres*;— *Dinoderus truncatus*, D. *brevis*;— *Cicones lineaticollis*;— *Eudophloeus nosodermoides*;— *Phloeonemus catenulatus*;— *Coxelus pacificus*;— *Lasconotus borealis*;— *Socylus dentiger*.

**An Account of some Insects of unusual interest from
 the tertiary Rocks of Colorado and Wyoming.**

BY S. H. SCUDDER.

(*Haydens U. S. Geol. and Geog. Survey, Washington May, 1878.*)

Describes species of several orders, among them the finest known specimen of petrified Lepidoptera *Prodryas persephone*, the first fossil butterfly found in America.

F. G. Schanff.

The European *Aphodius consputus* Creutz is very common near Orono Me.

C. H. Fernald

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Dejean, Catalogue des Coleopteres 2 vol.

\$2.00.

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H. SCHMELTZER.

229 Bedford Ave. Brooklyn, E. D. N. Y.

Wants in exchange or by purchase *Cryptoccephalidæ* of Mexico and the West Indian Islands. Also the following species of our fauna, Nos. according to Crotch's check list. 5584, 5585b, 5586, 5591, 5594, 5600, 5605, 5607, 5608, 5611, 5619, 5621, 5622. Also *Cryptoc-nigerrimus* Cr., *insertus* Hal., *lixus* Newm., *punctipes* Say., *quadrifrons* Newm.

BULLETIN.
—OF THE—
Brooklyn Entomological Society.

BROOKLYN, AUG. 1878.

No. 4.

PRACTICAL HINTS ON COLLECTING COLEOPTERA.

BY H. SCHMELTER.

Continued.

Some writers recommend for the capture of species living with ants, to sift the material composing the nests of ants in winter while the ants are in a torpid state and can not molest the collector in this operation. But as I have not been able to find ant-hills around New York, I can not speak with personal experience of its merits.

Placing of small stones in the vicinity of these nests in spring as traps for the coleoptera parasites of ants, is also recommended.

Occasional careful inspection of the underside of these stones is said to give often very satisfactory results, less in the number, than in the value of these minute species found. I have not practically tested this method and I would therefore be greatly pleased, if collectors who are in the position to employ both methods would communicate with me on their experience.

With the increasing warmth of spring ponds and brooks offer good collecting fields. A net is required made of some strong and at the time porous cloth; the one which I use is made of ordinary muslin, with a bottom of the finest brass wire cloth, the meshes of which do not exceed $\frac{1}{2}$ mm.

The water will readily pass through this net, but even the most minute insects will be retained. Mr. Isenschmidt recommends in the "Entomologische Nachrichten of Puttbus," a net constructed entirely of woven wire. But besides the difficulty and expense of obtaining such a net, transportation must be very inconvenient, and I believe therefore that the first named net will have the preference with most collectors. During a collecting trip without a net the

inhabitants of rain pools and puddles etc. can be captured by disturbing the water with a stick and thus bringing up the impurities from the bottom. Soon thereafter insects will be seen floating on the surface and can be easily captured with the hand.

The decaying vegetable substances, leaves etc. on the bottom of ponds, as well as the weeds and plants growing therein should be taken out with the net and carefully examined, and will yield many small species. I have never found *Elmidae* between such substances, although I have heard that other collectors have done so.

Elmidae and *Parnidae* can be taken on wood immersed in running water, in which some obstruction causes a strong current.

Wood appears to be generally preferred by them and can be laid as traps on the bed of a brook in suitable places. I have repeatedly taken as many as fifty and more specimen on a short piece of board.

With the advancing summer the most useful tool for the collector will be the beating net. With it the blooming meadows, the shrubbery on the sides of country roads and foot paths, the low trees on the borders of woods and on the banks of brooks and ditches, bushes and the like are swept by dexterous strokes. After 15 or 20 strokes the contents of the net should be examined and if the locality has been well selected, it will contain a great variety of insects of all orders, and generally a collector gets more desirable species than he is able to collect in any other way.

The larger the net, the better it will of course be adapted to the purpose. A strong wire ring of one to one and a half foot in diameter with a bag of muslin attached of at least the same depth, firmly fixed to the end of a stick about 2 to 3 feet long, represents the most simple and durable beating net. To make it more convenient for carrying, quite a large number of different constructions have been recommended. A very practical one is that described by Mr. Hoyt in the present number.

In another form which is much used, the ring consist of different parts, two or three, which are connected by means of joints, and the ring can be folded when not in use. By means of a screw the ends of this ring are firmly fixed into a tube, which again fits tightly on the end of an ordinary walking cane. In any fishing tackle store, rings of this or of a similar construction are for sale, and it is therefore unnecessary to give here a more detailed description.

(To be continued.)

MR. KAMPFMULLER, will furnish nets of any description, his address will be found in the advertising columns

NEW COLLECTING NET.

A very serviceable collecting net can be made in the manner described below. In addition to strength and durability, it has the advantage over the more common forms, that it can be rolled into a very small compass, and carried in a comparatively small pocket. It is particularly useful in collecting on the ground, or in places where a certain amount of elasticity is desirable in a net.

It is made of large size hoop-skirt or flat steel wire. Hoop-skirt wire of the ordinary thickness $\frac{1}{4}$ inch wide, will answer very well, but a trifle larger wire would be preferable.

Take a piece of wire about a yard long. Slightly heat, and bend back about $1\frac{1}{4}$ inch at the ends, so that the wire at these points will be double, for the distance named, and present springs of a wedge shaped appearance, leaving $\frac{1}{4}$ inch between the reflexed or bent end of the wire and the main piece. The point at which the bend is made will naturally appear like a loop, This should be flattened. When completed the two ends will be V shaped, the main wire connecting the two V's



and forming in each case also one of their arms.

Now all that is necessary to complete the net is a tube with square sides, made of brass. This can be easily formed and soldered upon a square arbor. To this should also be soldered a socket or ferule to hold the handle. This part when done will present the appearance of a T. After sewing on the netting, insert the two ends of the hoop in the square socket, and the net will be ready for use.

The springs that were formed at the ends of the wire will keep the net firmly in place, and those unacquainted with this form of net will be surprised at the service it will do. When not in use the hoop can be removed from the socket and the net rolled up in the space of a few inches and with the former kept in the pocket.

The writer usually carries it in this way and cuts a stick for a handle, when he gets into the country. The annexed illustration gives a fair idea of how the net should be made.

CHAS. N. HOYT.

Callida punctata Lec. is said to occur quite frequently near Buffalo on the flowers of *Solidago* in August and September.

The Cicindelidæ of the Neighbor-hood of New York.

1. *Cic. unipunctata*, *Fab.* Two specimens were collected by F. G. Schaupp in June, one at Fort Green, Myrtle Ave. on top of the hill, the other near Myrtle Ave. Carstable, cor. Broadway and Myrtle Ave. Brooklyn, L. I.
2. *Cic. rugifrons*, *Dej.* One specimen collected by Dr. H. Saltzweidel at Jamaica L. I. near the South Side R. R. Depot, July 4th.
3. *Cic. modesta* *Dej.* May, June and Sept. near the fre-work factory in Greenville, N. J. in the sandpit near the cemetery at Marion, N. J. and by Mr. A. S. Fuller near his residence in Ridgewood N. J.
4. *Cic. sexguttata* *Fab.* June to Sept. In the wood near Ridgewood Water Reservoir, and in that behind the Pennybridge on the road to Winfield, L. I. Fort Lee, N. J. etc.
5. *Cic. limbalis*, *Kl.* May. One specimen collected by Mr. H. Koestlin near Fort Lee, N. J.
6. *Cic. purpurea* *Oliv.* March, Sept. On the empty lots cor. Myrtle Ave. and Broadway, in the wood near Ridgewood Water Reservoir, L. I. and at Fort Lee, N. J.
7. *Cic. generosa* *Dej.* May and June at the same localities as No. 3.
8. *Cic. tranquebarica*, *Hbst.* June, Sept. On the road near Greenville N. J. and near East New York, L. I.
9. *Cic. 12 guttata*, *Dej.* May and June. On sandy roads near the Hoboken Gashouse N. J., in Middle Village Cemetery, and near Myrtle Ave. Carstable, L. I.
10. *Cic. repanda*, *Dej.* June to October. On the roads near Pennybridge, L. I., Greenville, N. J., Wmsburgh Slaughterhouse; on rainy days to be picked easily out of the holes; Coney Island and Rockaway Beach, L. I.
11. *Cic. hirticollis*, *Say.* March-Sept. On Coney Island and Rockaway, L. I. near the shore.
12. *Cic. dorsalis*, *Say.* July-Sept. On the Shores of Coney Island and Rockaway Beach, L. I.
13. *Cic. marginata*, *Fab.* July-Sept. Northport, and Canarsie, L. I.; Greenville, N. J.; near the shore.
14. *Cic. lepida*, *Dej.* June and July on the sand-hills near the landings at Coney Island, L. I.
15. *Cic. punctulata*, *Fab.* June-Sept. often found in the streets of the City, near Middle Village Cemetery, East New York, L. I. and Greenville, N. J.

DIACHILA, Mots.

D. subpolaris. Lec. Dark bronze, shining, underside and legs black. It resembles *Blethisa*, but differs from it by the last joint of maxillary palpi being elongated as in *Elaphrus*, and from *Elaphrus* by having small eyes and the elytra striate without large foveae.

LEC. New species I. page 2. Length 10 mm. Hudson Bay Terr.

BLETHISA, Bon.

Blethisa resembles *Elaphrus*, but has the head narrower and the eyes smaller, head and thorax parallel, elytra distinctly foveolate. They live during summer near rainpools.

Crotch classified them as follows (Trans. Am. Ent. Soc. V. 247).

Thorax punctate above	1. Julii.
Thorax smooth	
Thorax quadrate	2. quadricollis.
Thorax subcordate	
Thorax punctate beneath	3. multipunctata.
Thorax smooth beneath	4. oregonensis.

1. Julii, Lec. New spec. I. 1863. page 2. Length 11 mm. Nova Scotia.
2. quadricollis, Hald. Proc. Ac. Phil. III. 149. Length 15 mm. found in Wise. and N. Ills.
3. multipunctata, Lin. Faun. Suec. Nr. 805. Length 12 mm. Europe and North U. S.
4. oregonensis, Lec. Classif. Cara'b. page 491. - acutangula. Chd. Length 12 mm. Oregon.

Synoptic table of the three genera of ELAPHRINI.

By Geo. H. Horn. M. D.

Eyes prominent. Elytra foveate.	1. <i>Elaphrus</i> .
Eyes not prominent.	
Last joint of maxillary palpi long. Elytra not foveate.	2. <i>Diachila</i> .
Last joint of maxillary palpi short. Elytra foveate.	3. <i>Blethisa</i> .

LORICERA, Latr.



First joint of antennæ very long, joints 2-6 furnished with long diverging bristles. They live near rainpools or near swamps in woods.

Synoptic table by Geo. H. Horn. M. D.

Elytra with a single series of foveolae.	
Sides of thorax posteriorly oblique, hind angles not prominent	1. <i>caerulescens</i> .
Sides of thorax slightly sinuate, hind angles subrectangular.	2. <i>californica</i> .
Elytra with a double series of foveolae.	
Legs black; hind angles of thorax rectangular.	3. <i>decempunctata</i> .
Legs testaceous; hind angles obtuse.	4. <i>foveata</i> .

1. *caerulescens*, Lin. Syst. Ent. page 243. - *pilicornis* Fab. - *semipunctata*, Mann. Bull. Mosc. 1843. page 91. - *neoscotica*, Lec. New Spec. Col. I. 1863. page 3. Length 8-9 mm. North of Europe and of U. S.
2. *californica*, Lec. New Spec. Col. I. 1863. page 3. Length 8mm. Cal.
3. *decempunctata*, Mann. Bull. Mosc. 1843. page 92. Length 9 mm. Sitka.
4. *foveata*, Lec. Annal. Lye. V. page 180. Length 8 mm. Cal.

L. congesta, Mann. Bull. Mosc. 1853. III. 121. from Kenai appears to be described from a deformed specimen, as two foveae on the disc of thorax in front of middle are mentioned, this being rather a deformity than otherwise.

TRACHYPACHYS, Mots.

Resembles a small *Amara* and differs from all the other *Carabidae* by the posterior coxae attaining the margin of the body.

Synoptic table by Geo. H. Horn. M. D.

Thorax narrower at base than at middle; basal transverse impression deep.

1, *inermis*.

Thorax not narrowed at base; basal transverse impression shallow.

2, *Gibbsii*.

1. *inermis*, Mots. Kaef. Russl. page 16. not. 6 - Holmbergi, Mann. Bull. Mosc. 153. III. page 198 Length 4 mm. Alaska.

2. *Gibbsii*, Lec. Fre. Ac. Phil. 1861. page 339. Length 5 mm. Cal.

NOTIOPHILUS, Dum.



Head triangular, as broad as thorax, anterior tibiae obliquely truncate. Color bronze.

They live in damp, sunny places under fallen leaves etc.

Crotch [Trans. Am. Ent. Soc. V. 247], classifies them as follows:

Legs red.

1. *aeneus*.

Tibiae pale, femora metallic black.

Striae geminate, interstices opaque.

Elytra three-foveolate.

2. *semiopacus*.

Elytra one-foveolate.

3. *nitens*.

Striae uniform, interstices shining.

Elytra yellow at the sides.

4. *sylvaticus*.

Elytra unicolorous.

Striae entire, closely placed.

5. *semistriatus*.

Striae effaced at apex, intervals broader.

6. *sibiricus*,

Legs entirely metallic black.

7. *Hardyi*.

1. *aeneus*, Hbst. Col. X. page 235. - *porrectus*, Say. Trans. Am. Phil. IV. 418. Length 5 mm. North U. S.

2. *semiopacus*, Eschh. Zool. Atlas V. 25 tab. 25. f. 6. Length 5 mm. Cal.

3. *nitens*, Lec. Ent. Rep. 1857. page 31. Length 5 mm. Oregon.

4. *sylvaticus*, Eschh. Zool. Atl. V. 24 tab. 25. f. 5. Length 5 mm. Sitka.

5. *semistriatus*, Say. Trans. Am. Phil. II. 81. - *novemstriatus*, Lec. Ann. Lyc. IV. page 350. Length 5 mm. Cal.

6. *sibiricus*, Mots. Ins. Sib. page 71. tab. 3. f. 1. - *punctatus*, Lec. Aggss. Lak. Sup. page 210. Length 5 mm. East Siberia, North U. S.—*confusus* Lec.

7. *Hardyi*, Putz. Mem. Liege 1866, page 165. Length 4 mm. Newfld. N. Y.

SP

OPISTHIUS, Kirby.

O. Richardsoni, Kirby. Dark bronze, subopaque. Thorax broader than long. Elytra depressed, broadly oval and with three discal series of large foveae, and a smaller submarginal series.—Kirby, Fauna Bor. Am. page 61. pl. 1. fig. 9. Length 10 mm.

Fort Bridger, Wyoming and from this point N. W. to Oregon and N. E. to Hudson Bay region.

GEO. H. HORN.

**On the Capture of *Oncoenemis Chandleri*, Grote.
Var. *Riparia*, Morrison.**

On July 7th and 8th 1875 I took at Locust Valley, L. I., about twenty specimens of this species. I found them concealed in the crevices of a few bathing houses on the shore of L. I. Sound, and it was only with difficulty that I succeeded in driving them from their hiding places into the cyanide bottle: several specimens escaped, but I was fortunate enough to secure most of them. The majority were males, still I got quite a fair proportion of females.

The capture is interesting, inasmuch as the species of the genus *Oncoenemis* both in Europe and in this country had thus far been found to inhabit only the mountains.

F. TEPPER.

Cucujus clavipes *Flab.* was so frequent in a little forest near Belleville N. J. that under the bark of about 10 decayed trees several hundreds of this species, always considered quite rare, were secured.

Lebia grandis *Hentz.* was during this winter in the woods near Jamaica L. I. the most common beetle: A few hundred specimens were captured.

C. FUCHS

NEW PUBLICATIONS.

Part 15 Lepidoptera By HERMAN STRECKER is received, and contains information of great interest: we cannot however but object to the personalities therein contained.

We would also call attention to the fact that although issued in July 1878, it bears the date 1877 conspicuously displayed on its cover.

"*Psyche*," in its recent issue takes notice of the May number of our Bulletin by calling our attention to proof reading. Mr. Mann has our cordial thanks for his courteous advice, but we are surprised to find this criticism in a number claiming on its face to be issued in January and February, two or three months prior to the issue of our own paper. The criticism is good, but the critic should be careful to avoid such contradictions in dates.

Mr. S. Cassino has during the last month published the new naturalists directory. Price to subscribers \$1. to others \$3.

The promised improvement over the previous directory is not altogether evident to us, as the entire omission of a society to which reference was made in the first, and similar discrepancies in the last book do not speak well for the promised careful compilation.

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" - - - - -	2 00 - - - - -

Other sizes and thicknesses at proportionate prices.

Arthur Wadgymar, M. D.

Castroville, Medina Co, Texas.

Keeps constantly on hand a full assortment of Texan Coleoptera and offers the same for sale or exchange. Just on hand a few specimens of *Stenaspis splendens*, *Lec. Gymnetis Sallei*, *Schaum*. *Stenaspis solitarius*, *Sig. Dynastes Tityus*, *Lin*.

18 diff. species of Texan Cicindela.

W. KAMPFMULLER.

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BULLETIN
—OF THE—
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BROOKLYN, SEPT. 1878.

No. 5.

PRACTICAL HINTS ON COLLECTING
COLEOPTERA.

BY H. SCHMELTER.

Continued.

Woodboring coleoptera may be captured, often in large numbers, by sawing off the dead branches of trees in spring, gathering plants with pithy stems, such as the elder, also reed, etc., and piling up these materials in an empty room with tightly closing door and windows, the latter best made of wire screen, so as to admit of a free circulation of air. If a special room for this purpose is not at disposal, a large box connected with a small one of which several sides should be made of glass will answer. The insects after having made their way out of the wood during spring and summer will be attracted by the light to the windows of the room or into the smaller box and can there be easily captured.

Another opportunity for wholesale capture of beetles is often afforded to the New York collector during summer on the beach of Coney Island and Rockaway. At any time insects washed ashore by the tide may be found there, but after a strong easterly wind the number and variety is quite remarkable. Most of them are certainly swept by the wind into the sea at the Highlands on the Jersey coast and carried by the tide to the opposite shore, but some are evidently carried a long distance, *Omophron nitidum*, *Lec. Alaus myops*, *Fabr.* *Tragidion coquus*, *Linn.* and other evidently southern species having been found on the beach.

Besides these a great many other species living under seaweed, or pieces of wood and other objects cast up by the tide may be found there. A specification of these sea-shore species, which may not be uninteresting, I shall reserve for a future occasion.

But many species of coleoptera can not be captured in the man-

ners alluded to and therefore traps have to be laid for them or other means employed to force them to leave their hiding places.

I will cite in the following a number of traps and methods of capture known to me, but as almost every collector has some method of his own, often a jealously guarded secret, it will be far from exhausting this topic.

For the capture of carrion beetles a method has been described in a previous number, but the bait there recommended viz: refuse meat, will only attract a very limited number of species, although it is of all of these methods, causing without exception a great discomfort to our nasal organ, the least objectionable.

Carrion of different kinds of animals will attract different species of insects. Some of these only feed on the flesh, while others take to the skin and hair or feathers of the carrion; and others again make their appearance only after the skeleton is exposed.

In baiting for *Necrophoridae* different sorts of bait, *i. e.*, mammalia, birds, reptiles, should be laid and the inspection not discontinued after the flesh has disappeared, as then only the most interesting and rare species can be captured. By a piece of cord fastened to it the carrion can be lifted and slightly shaken over a bag into which the insects will drop. Smaller bait may be enclosed in a wide mouthed bottle, dug up to the mouth in the earth. Some leaves should be placed on the bottom of it to offer hiding places and to prevent the captured insects from making war against each other. Old cheese is said to be a good bait.

Another way of baiting is "sugaring." A mixture of sour beer and molasses in equal parts, flavoured with a little brandy, is an excellent bait applied to boards, stumps or trunks of trees; it will attract, especially in the evening, besides numbers of lepidoptera also many coleoptera, *Cerambycidae*, *Elateridae* and others.

Heaps of weeds, if left to rot will attract numbers of insects which can be captured by sifting the weeds from time to time.

Fungi may be made use of in the same manner to great advantage.

Blowing tobacco smoke into the crevices of wood, fence posts etc., will be effective in driving out the insects hiding therein.

(To be continued.)

Relating to the species enumerated in Merss. Hubbard's and Schwarz's list of Fla. Coleoptera (see this No. of Bull. p. 39) we can add: *Cychrus elevatus*, *Fab.*; *Dicaelus furvus*, *Say.*; *Geotrypes retusus*, *Lec.*, and *Blackburnii*, *Fab.*; *Trox monachus*, *Hbst.*; *Lachnosterna crenulata*, *Froehl.*; *Macrodactylus angustatus*, *Beauv.*; *Elater rubricollis*, *Hbst.*; *Callichroma splendidum* [red var.], *Lec.*; *Strangalia bicolor*, *Swed.*; *Cryptocephalus congestus*, *Fab.*, and *Confluens*, *Say.*; *Helops undulatus*, *Lec.*; etc., etc.

On Raising Coleoptera in Captivity.

February 5th, I found two *Cychnus Lecontei* in coitu under moss, and put them in a breeding box, they were in coitu from Febr. 5 to 9th, then from Febr. 18 to 23rd, then again from March 10 to 13.

They fed on snails, and the snails on cabbage leaves.

April 1st found another male, of which I cut off a few joints of one antenna, in order to distinguish it, five minutes after entering the cage, the new male had already copulated with the female, and remained so till April 4th, then copulated again from April 5 till April 9th. April 18 two of them fought about a soft larva and one drove the other away. April 24th, I removed the three *Cychnus* into another box, as I feared they might eat their own young.

May 20 I found them all dead and no trace of eggs.

March 31, I captured several *Carabus limbatus* and put six males and six females in a cage, I fed them every second day with a piece of veal or beef [as large as a finger].

Very often some of the Carabi ran to the meat as soon as it reached the bottom of the box and soon the whole colony either attracted by its smell or by the noise made with the maxillæ and legs of those already feeding drew near. I had one larva and several eggs, when I left for the country (July 4).

In a third cage I had six *Chlaenius æstivus* two male and four female and the same number of *Galerita janus*. As the larva of *Galerita* has already been described and has a very different form from other Carabidous larva I thought there would be no difficulty in distinguishing them. I fed them also with meat, adding occasionally a few leaves of lettuce. I had one larva of *Galerita*, two larvae of *Chlaenius*, (which have the two appendages on the tergal part of the last segment furcated) and several eggs (July 4th).

In the fourth cage I had several *Cucujus clavipes*, of which I raised several larvae. In another cage I had a lot of Coleoptera viz. *Pterostichus*, *Chlaenius*, *Platynus*, *Galerita*, *Lebia*, *Dacne*, *Diaperis hydni*, *Chrysomela*, *Cucujus clavipes*, *Sphenophorus* etc.

They were fed with meat and vegetables.

As a matter of course the bottom of each box was covered about 2 inches high with earth, moss, and decaying wood upon it, for hiding places, and the ground sprinkled with water every two days.

I also kept alive in one cage several *Cicindela sexguttata* and *repanda* for three months, which copulated intermiscuously, dug holes etc. but no larvæ were found.

Now my experiences are:

1. The wire cloth for the boxes must be that with the smallest holes possible, to prevent the young larvæ from escaping through them.
2. All the ingredients for the cage, sand, earth, rotten wood, moss, etc. have to pass a bath of boiling water to destroy any insect life (eggs or minute larvæ) that might be previously contained and otherwise introduced into the cage and so lead to mistakes.
3. To procure live food leave the meat a few days in the cage with some meatflies, deprived of wings and the maggots of the flies will soon hatch and produce fine food for the larvæ.
4. When you see a sufficient number of eggs in the cage, do not remove the eggs, which are usually imbedded in the earth, but remove the beetles and leave the eggs in the cage.
5. During day time keep the caged beetles in a dark cool place, and place them during night before the window in the open air, except of course Cicindelidae etc.

At night all the inmates of a cage become very lively, try to escape and are all on the top of the wirecloth-sides of the cage.

When I left town for the country (July 5th) I intrusted my cages to the care of some members of our Society and I am very desirous to see the results after my return (Sept. 5th).

Now if every one of our readers would try to raise but one species of coleoptera, which would in no way cause too much trouble, and communicate the results with us, I think it would be a great thing. Further particulars willingly given if desired by letter.

F. G. SCHAUPP.

Variety of *Hypercheria io*, *Fabr.*

A year ago last spring I had about 30 pupae of *Hypercheria io*, all from one brood. In due time the imagines emerged, and one of these chrysalids produced a very striking female aberration.

The primaries of this specimen are lighter in color and have a more redish tint; the transverse lines are closer together than in the typical form and the discal spot is very indistinct.

The posteriors lack the black stripe that runs between the red band along the exterior margin and the eye; in its place a broad black band connects with the eye from the interior margin and the abdominal edge of the secondaries. The red band is about three times the width of that in ordinary specimens.

FRED. TEPPER.

SYNOPTIC TABLE OF LEPIDOPTERA, GENUS PAPILIO, *Lin.*

(Continued.)

P. Bairdii, *Edwards*. Ground color black, both wings with a marginal row of yellow lunules; the inner band is yellow, nearly as in *Asterius*; anal spot orange; tails long and black. Expands four inches. Arizona.

C. Ground color black, with blue markings.

P. Villiersii, *Bdv.* Wings, ground color greenish black; primaries with a submarginal row of small bluish lunular spots; secondaries with a row of very large blue lunules; tails spatulate, long. Expands three and a half inches.

Florida, Cuba.

D. Ground color green with black markings.

P. Sinon, *Fabr.* Wings ground color pale green with black markings much like *Ajax*, but heavier; the primaries have a marginal row of irregular pale green spots, and the secondaries a marginal row of lunules of the same color; anal spot bright red; tails rather long and black. Expands about two and one half inches. Florida, Cuba.

Group II.

P. Polydamas, *Lin.* Wings greenish black; primaries with a marginal row of yellow lunular spots; secondaries with large yellow lunules; no tails. Expands about three and one half inches. Florida, Cuba.

The following two species are unknown to us:

P. Pergamus, *H. Edw.*

“ **Hippocrates**, *Felder.*

GENUS PARNASSIUS *Latr.*

Head moderately large, palpi long and clothed with fine hairs; antennae short, terminating in a stout elongated club; body thick and heavy, the abdomen of the ♀ is provided with a pouch or horny valve. Wings, parchment like, nerves prominent and nearly destitute of scales on the under side and towards the summit of the upper side; secondaries have the abdominal edge sloped, leaving the abdomen entirely free.—

We may divide the Parnassians of North America into two groups:

I. White with black markings—Type, **P. Smintheus**, *Doubl.*

II. Yellow with black markings—Type, **P. Eversmanni**, *Men.*

P. Smintheus, *Doubl.* ♂ Wings clear white; primaries with two marginal narrow zigzag bands of black, the basal area has two deep black spots and two or three red spots bordered by black and sometimes connected; secondaries with a marginal row of black spots, which in some specimens are very indistinct, and with two red ocelli bordered by black and having sometimes a white spot in the middle; body black above and white below. Expands two to two one half inches. The ♀ has the wings more transparent and more heavily marked with black, the red spots and ocelli are also larger and more prominent. Colorado. California.

P. Clodius, *Men.* Somewhat larger than the above; the primaries are more heavily marked with black and lack the red spots, secondaries with two red ocelli bordered by black, the ♂ has no marginal row of black spots. Expands about three inches. California.

T. Clarius. *Eversm.* Very close to the above, but smaller and with the black markings slighter; the red ocelli on the secondaries are smaller. Expands two to two one half inches. California.

P. Nomion. *Fisch.* Wings clear white, primaries with a marginal band of grayish black, intersected by white spots, and a submarginal row of irregular black spots; between this and the base are five large black spots; secondaries have two large red ocelli heavily bordered by black, and a marginal row of black spots. Expands about three and one half inches. Alaska, Sitka, Siberia.

Group II. contains but one species:

P. Eversmanni. *Men.* Wings, ground color citron yellow with the semi-transparent black shadings on primaries common to most all Parnassians; secondaries with two red ocelli. Expands two and one half inches. Alaska.

GENUS PIERIS. *Schrk.*

Head rather large; eyes naked; palpi rather long, clothed with rigid hairs; antennæ moderate; abdomen slender and somewhat shorter than the secondaries; wings moderately strong, the discoidal cell closed.

Group I.

Pieris Menapia. *Felder.* Wings pure white; primaries, costal margin black, an elongated black spot bordering on the discoidal cell, and an irregular black band extending over the apex and about three quarters of the exterior margin, containing generally five white spots, sometimes less; secondaries with the veins more or less prominently black. The female has a black band near the exterior margin of the secondaries and the veins between this band and the exterior margin are heavily marked with black; the underside of the secondaries of the female are bordered by streaks and spots of orange red; a slight tendency to this marking occurs sometimes in the male. Expands from one three quarter to two and one quarter inches. Colorado, Oregon, California, Vancouvers Island.

Group II.

Pieris Iliaire. *Godt.* Wings clear white with the costal margin and exterior margins of primaries and secondaries very slightly bordered by black; the wings are rather elongated; body blackish above, white beneath. Expands two and one half inches. Florida (occasional).

Pieris Monuste. *Linn.* Wings white; primaries with the costal margin black, and the exterior margin with a black border, wider at the apex and serrated within; in the ♀ the black border is broader with two white rays towards the apex, and there is a black spot on the middle of the antérieurs; the secondaries of the ♂ are entirely white, the ♀ has a series of black triangular spots along the exterior margin; body black above and white beneath. Expands from two to two and one quarter inches. Southern States, Texas.

One form of the ♀ *P. cleomes*, *Bdv.*, is entirely smoky gray with the same markings as the normal form.

(To be continued.)

I remained at Capon Springs, W. Va. from the middle of June to nearly the end of August. Insects were not very abundant, and but a few rare species were found. Even the fungi which grew plentifully in August failed, with the sieve, to give more than two or three *Homalotæ*, some very ordinary species of *Gyrophæna*, and a few *Boletobius*, and *Oxyporus*.

Staphylinus fossator was not rare in fungi. I observed that *Cicindela patruela* was double brooded: the first brood disappeared about the end of June, and the second appeared towards the end of August, *C. rufiventris* appeared first about the middle of July and remained abundant until the end of August. *Dicerca* — was taken in moderate numbers on a persimmon tree (*Diospyros virginiana*) in front of the hotel, from the beginning to the middle of July.

John L. Leconte, M.D.

I succeeded this year in raising *Dicælus elongatus* and *politus* etc. Description will be given in our next number.

F. G. SCHAUPP.

NEW PUBLICATION.

Coleoptera of Florida and Michigan, by H. G. Hubbard and E. A. Schwarz. Descriptions of new species, by J. L. Leconte, M.D., and E. A. Schwarz.

Proc. Am. Phil. Soc. XVII., 1878, pp. 353-670.

Contains:—

Descriptions of 33 new species, by Schwarz, with a synopsis of *Cyclonotum*.

Descriptions of 148 new species, by Dr. Leconte, with synoptic tables of *Loxandrus*, *Ochthebius*, *Trimium*, *Acylophorus*, *Cryptobium*, *Paederus*, *Palaminus*, *Catorama*, *Caenocara*, *Chaetocnema*, *Hypophloeus*, *Strongylium*, *Xylophilus*.

A list of 1457 Fla. species, by Schwarz.

Remarks on Geographical Distribution, by Dr. Leconte.

Description of 80 new species from Michigan, by Dr. Leconte, with synoptic tables of *Mycetophagus*, *Diplocoelus*, *Litargus*, *Aegialia*, *Mycetochares*, *Hallomenus*, *Orchestes*.

List of Coleoptera found in the Lake Superior Region, and

Contribution to a list of the Coleoptera of the Lower Peninsula of Michigan, by Hubbard and Schwarz.

Description of the larva of *Micromalthus debilis* Lec., with a plate, by Hubbard.

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Stenaspis solitarius, *Say*. *Dynastes Tityus*, *Lin*.

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BULLETIN.

—OF THE—

Brooklyn Entomological Society.

BROOKLYN, OCT. 1878.

No. 6.

PRACTICAL HINTS ON COLLECTING COLEOPTERA.

BY H. SCHMELTER.

Concluded.

The last and one of the best traps to be described is the light trap which may be easily constructed in the following manner.

A lantern, combined with a reflector, is suspended outside on the wall of a house or on a post, and directly under it is placed a funnel, by at least several inches larger in diameter than the lantern, the tube of the funnel reaching into a bottle partly filled with diluted alcohol. This trap will become the more effective the more isolated the locality.

A lamp placed on a table before an open window will also answer the purpose.

Though living in the city I have captured quite a number of insects in this manner, and in the country it has always proved very successful.

In concluding this article I hope that other practical collectors will take up the subject and give us their own experience on the habits of coleoptera and their capture. We do not need to visit distant places in order to get new additions to our cabinets, as much can be done yet by thoroughly exploring our own localities. Even one so much frequented by collectors as that around New York city has yielded in the last years, especially by use of the sieve, a number of new species of *Staphilinidæ* and other families.

**DESCRIPTION OF THE LARVA
OF STAPHILINUS MACULOSUS. *Grav.***

Form elongate; narrower posteriorly.

Color castaneous; abdomen dirty white.

Head subquadrate, suddenly constricted at the base; hind angles rounded, above slightly flattened, beneath feebly convex, gular region in front slightly concave; frontal margin arcuate, strongly serrate with 9 teeth.

Eyes four on each side, placed behind the base of the mandibles.

Antennæ four jointed, arising from the front within the base of the mandibles, and not longer than those; first joint short, conical; second elongate, slightly clavate; third, two-thirds the length of second and more slender, and with a short spine at tip on the inner side; fourth joint very slender and half the length of the third, these last two joints with several short hairs near their tips.

Mandibles simple, moderately elongate and arcuate.

Maxillae moderately long, basal joint short and rather stout, second or cardinal piece elongate, with a short lobe of two immoveable joints arising from the tip at the inner side and a three-jointed palpus externally, the first two joints of the palpus are similar, the third shorter and aciculate.

Mentum triangular, narrowest in front, coriaceous, supporting a ligula which is narrow at base, suddenly broader at apex, and with a terminal acute prolongation, palpi two-jointed, the basal joint elongated, the terminal joint scarcely half as long, slender and awl-shaped.

Prothorax slightly broader than long, narrower than the head, broader at base than apex, sides very feebly arcuate, surface smooth, an antebasal transverse line.

Mesothorax transverse, much shorter than the prothorax, slightly narrower and with antebasal line.

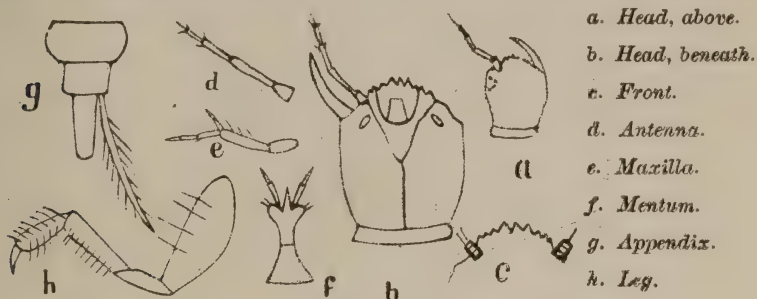
Metathorax similar to the mesothorax.

Abdomen first segment narrower than the others, segments 2-8 gradually more elongate and narrower, ninth very small and tubular and with a moderately long tubular prolongation, and two slender subarticulated appendages, which have long bristly hairs.

Spiracles, nine on each side, the first large, under the basal angle of the prothorax, second at the side of the first abdominal segment a little smaller than the first; spiracles 3-9 are small

and situated at the sides of the abdominal segments 2-8.

One of the notable characters of the larva is the fact that the mouth is very small, the only opening being that from which the mentum arises, the sides of the gula around the mentum and the maxillæ forming a close union with the upper portion of the head.



Larva of Staphilinus maculosus.

When the larva is full grown, it builds a nest of grass and earth under stones, boards, etc., and forms a pupa covered by a brown shining chitin, like that of the moths, but greatly differing by its flattened shape; after fifteen days the pupa becomes darker pur the 17th day the imago develops, being first pale-brown, but coloring fully after two days.

Larva found.	Pupa.	Imago.
Aug. 3th.	Aug. 19th. . . .	Sept. 6th.
Aug. 14th.	Aug. 15th. . . .	Sept. 1st.

LARVA OF DICÆLUS ELONGATUS, Dej.

This larva resembles very much that of *Dicaelus dilatatus*, described in No. 1 of our BULLETIN, and that described by Dr. Horn (Trans. Am. Ent. Soc., Vol. VII., p 37), but differs by its smaller size, 17 mm., and by having head, legs, and fork-like appendage of last segment rufous; the middle part of the first antennal joint and the tips of the three others are transparent, whitish-yellow, and the dark parts are furnished with short hairs; the tip of the first maxillar joint is furnished on the inner side with a small spine; the black scutes of the dorsal abdominal segments are narrower than those of *dilatatus*, so that the larva shows much more white; the larger transverse plates of the ventral segments are formed somewhat differently.

Pupa of *Dicaelus elongatus*, Dej.

The larva undergoes its transformation during the day-time, and the pupa is entirely white, 10 mm. long, and presents very little worthy of special mention. The labrum is of an elongate triangular form and extends to the tips of the mandibles, and is apparently composed of two parts, a transverse basal portion which is the true labrum, and the triangular apex which disappears with the pupa skin. The palpi are also very elongate and the ligula prolonged.

After six days the eyes of the pupa become dark, then the mouthparts brown, and after ten days the imago develops fully.

It remains two days white, and becomes black at the end of the twelfth day.

Larva found.	Transf. into pupa.	Imago developed.
Aug. 7th.	Aug. 9th.	Aug. 19th.
Aug. 12th.	Aug. 15th.	Aug. 25th.
Aug. 13th.	Aug. 17th.	

Larva of *Dicaelus politus*.

So closely resembling that of *Dicaelus elongatus*, that I can see no differences, except that the antennæ and legs are dark, nearly black.

Pupa also very similar.

I found a specimen Aug. 25th, that transformed into pupa Aug. 30th, and the imago developed Sept. 7th.

Two other similar larva died.

The larva of *Dicaelus dilatatus* is, while young, grayish-black above, and somewhat lighter gray beneath so that the seven black marks of the ventral segments are visible only by close inspection. By growing larger, this gray changes into white.

F. G. SCHAUPP.

During my stay in Fla. I observed that the larvæ of *Catocala fratercula*, G. & R. (*C. atarah*, Strecker) live on live oak, remain in pupa state two weeks; the larvæ of *ultronia* Guen. live on wild cherry. Of *C. Sappho* Strecker I collected fifteen specimens; the first appeared at the end of April.

Cicindela marginata Fab. was found near a creek on a meadow, end of June, *C. gratiosa* Guer. six miles south of Tallahassee in pine woods, end of May rare, and common in June, intermingled with *C. abdominalis* Fab. and *punctulata* Fab.

A KOEBELE.

NEBRIA, Latr.

Middle sized species, having the maxillae armed beneath with bristles. They live under stones, etc., near rivers, and brooks, in Northern regions or in high altitudes. Horn classifies them (Trans. Am. Ent. Soc., III., p. 98.):

A.—Humeri of elytra obliterated; body either apterous or feebly winged.

Hind angles of thorax rectangular.

Side margin of prothorax very narrow, color black.

Side margin of prothorax wider, color brown.

Hind angles of prothorax not rectangular; sides oblique; color livid.

B.—Humeri of elytra distinct, at least moderately prominent.

Sides of elytra sub-parallel.

Metallic Species.

Sides of thorax oblique, hind angles not rectangular; color bluish metallic; dors. punct. faint or wanting.

Sides of thorax strongly sinuate, angles rectangular.

Elytra elongate, much longer than twice the width at base; slightly broader behind the middle.

Color purple; 3rd, 5th, and 7th, interstices with two or three punctures.

Color piceous black, with tinge of green, 3rd stria with five or six small punctures.

Elytra broader, sub-parallel, not longer than twice the width at base.

Antennae and legs black.

Elytra broad, depressed, deeply striate, dors. punct. very distinct.

Elytra more elongate and convex, striæ and punct. faint.

Antennæ and legs rufous or rufo-piceous. Four or five strong punctures on third interval.

Black Species.

Sides of thorax oblique, not sinuate near the base.

Antennæ and legs brown

Antennæ and legs black.

Elytra rather broad, parallel on the sides, 3rd stria with one dorsal puncture.

Elytra narrower, with several dorsal punctures on the third interspace,

Elytra obovate, wider behind, striæ faint.

Elytra parallel, striæ deeper.

Sides of thorax sinuate, hind angles rectangular.

Hind angles scarcely rectangular, dors. punct. faint.

Hind angles rectangular, dors. punct. distinct.

Hind angles rectangular, dorsal punctures of third and fifth intervals equally distinct and deep; femora rufous.

Sides of elytra strongly arcuate.

Legs black.

Hind angles of thorax very distinctly rectangular.

Interspaces 3rd, 5th, and 7th, interrupted with large punctures.

Interspaces 3rd, 5th, and 7th, with a few small punctures.

Hind angles scarcely rectangular.

Legs pale.

Hind angles of thorax rectangular.

Hind angles not rectangular, sides of thorax oblique.



1. *ingens.*
2. *ovipennis.*
3. *diversa.*

4. *virescens.*

5. *purpurata.*

6. *gregaria.*

7. *metallica.*

8. *Gebleri.*

9. *viridis.*

10. *obtusa.*

11. *obliqua.*

12. *longula.*

13. *suturalis.*

14. *hudsonica.*

15. *Sahlbergi.*

16. *bifaria.*

17. *trifaria.*

18. *Rathvoni.*

19. *Mannerheimii.*

20. *Eschscholtzii.*

21. *pallipes.*

- 1 *N. ingens*, Horn. Tr. Am. Ent. Soc. III. 1870. p. 98. Length 14–16 mm. Sierra Nevada, Cal.
2. *ovipennis*, Lec. Bull. U. S. Geolog. Survey. IV. n. 2. 1878. p. 477. Length 11.5 mm. Sierra Nev. Cal.
3. *diversa*, Lec. List. Col. N. A. 1863. p. 2. Length 10–11 mm. Or. *livida*. Lec. Proc Phil 1859, p. 8.
4. *virescens* Chd. ined. (Horn, Tr. Am. Ent. Soc. III. p. 100). Length 12 mm. Vanc. I., Wash. Terr.
5. *purpurata*, Lec. Bull. U. S. Geolog. Survey. IV. n. 2. 1878. p. 477. Length 12.5 mm. Col.
6. *gregaria*, Fischer. Ent. Russ. I. 72. pl. 6. fig. 2; Esch. Mem. Mosc. 1823. IV. p. 101. Length 11.5 mm. Alaska.
7. *metallica*, Fischer. Ent. Russ. I. 71. pl. 6. fig. 1; Esch. Mem. Mosc. 1823. IV. p. 100. Length 12–14.5 mm. Alaska., Cal.
8. *Gebleri*, Dej. Spec. V. 573. Esch. Zool. Atl. V. p. 23. pl. 25. fig. 3. Length 10 mm. Alaska.
9. *viridis*, Horn. Tr. Am. Ent. Soc. III. 1870. p. 101. Length 7–8 mm. Alaska, Wash. Terr.
10. *obtusa*, Lec. Bull. U. S. Geolog. Survey. IV. n. 2. 1878. p. 478. Length 11 mm. Wyoming.
11. *obliqua*, Lec. Proc. Ac. Phil. 1866. p. 363. Length 11 mm. Col.
12. *longula*, Lec. Bull. U. S. Geolog. Survey. IV. n. 2. 1878. p. 478. Length 9 mm. Col.
13. *suturalis*, Lec. Agass. L. Sup. p. 209. Length 10–11.5 mm. L. Sup., N. H.
14. *hudsonica*, Lec. New spec. p. 3. Length 10–10.5 mm. Hudson Bay Terr.
15. *Sahlbergi*, Fischer. Ent. Russ. III. p. 254. pl. 14, fig. 4. Esch. Zool. Atl. 1833. p. 23; *castanipes*, Kirby. N. Z. IV. p. 20. *moesta* (var.) Lec. Agass. Lake Sup. p. 209. Length 10 mm. Or. Alaska, N. H.
16. *bifaria*, Mann. Bull. Mosc. 1853. III. p. 128. Length 10 mm. Alaska.
17. *trifaria*, Lec. Bull. U. S. Geolog. Survey. IV. n. 2. 1878. p. 478. Length 13 mm. Utah.
18. *Rathvoni*, Lec. Tr. Am. Phil. Soc. X. 400. Length 12 mm. Cal.
19. *Mannerheimii*, Fischer. Ent. Russ. III. 253. pl. 14. fig. 5. Esch. Zool. Atl., 1833. p. 23. Length 11–12 mm.
20. *Eschscholtzii*, Men. Bull. Ac. Petrop. II. 1844. p. 55; *castanipes*, Lec. List Col. N. A. p. 2. Length 10–11.5 mm. Or. Cal.
21. *pallipes*, Say. Tr. Am. Phil. Soc. II. p. 78. Length 10–11.5 mm. North East of U. S.

The two following are said to have been found on our shores :

N. carbonaria, Esch. Zool. Atl. V. p. 24. Kamtschatka, Sitka.

N. nivalis, Payk. Fauna. Suec. p. 119. Lapland, Greenland.

The two following are unknown and unrecognizable, but said to be black and resemble *Sahlbergi*. var. *moesta* and are about the size of *viridis*.

N. elias, Motsch. Bull. Mosc. 1865. IV. p. 276.

N. mollis, Motsch. ib. p. 274.

From Dr. Leconte's table of *Nebria* (see Bull. U. S. Geological Survey Vol. IV. No. 2. page 473 ff.) we give below a condensed sketch of the groups.

Rows of ambulatorial setæ * double.

Humeri wanting. Group I. [contains of the above species No. 1. 2. 3.]

Humeri indistinct, rounded.

Elytra elongate oval. Group II [5. 17. 18.* and *N. carbonaria*].

Elytra oval, prothoracic side-margin narrow. Group III. [19. 20].

Humeri distinct, elytra truncate at base, prothoracic side-margin wide.

Group IV. [10. 11. 12. 13.—14. 15. *nivalis* 9. 6.—7. 8. 17.]

Rows of ambulatorial setæ * single.

Prothorax moderately narrowed behind. Group V. (4.)

Prothorax very much narrowed behind. Group VI. (21.)

* Setigerous punctures of the ventral segments.

NEW PUBLICATIONS

The following new Species of Coleoptera have been described in the paper mentioned in our last Bulletin : Coleoptera of Fla. and Mich. by Hubbard and Schwarz. etc.

New Species from Fla.

Described by E. A. Schwarz.

Lebia rhodopus, *Apenes angustata*, *Cyclonotum palmarum*, *Sacium molinum*, *S. splendens*, *Scydmænus divisus*, *Languria marginipennis*, *Tomarus hirtellus*, *Lathropus pictus*, *Læmophloeus chamæropis*, *Nemicelus microphthalmus*, *Philothermus puberulus*, *Olibrus princeps*, *Brachyacantha queretii*, *Hyperaspis paludicola*, *Strigoderma exigua*, *Taphrocerus puncticollis*, *Brachys fascifera*, *Pachyscelus cæruleus*, *Temnopsophus impressus*, *Eupactus viticola*, *Metachroma maculipenne*, *Chrysomela cephalanthi*, *Systema pallipes*, *Epitrix brevis*, *Chaetocnema crenulata*, *Ch. quadricollis*, *Microhopa floridana*, *Strongylium anthrax*, *Hymenorus dorsalis*, *Isomira valida*, *Xylophilus quericola*, *X. ptinoides*, *Glipa hieroglyphica*.

Described by Dr. Leconte.

Species from Fla. when no other locality is given.

Dyschirius falciger, *Onota* (new) *trivittata*, *Platynus floridanus*, *Pl. texanus*, *Tex.* *Loxandrus reflexus*, *L. calathinus*, *L. floridanus*, *L. rectangulus*, *Selenophorus excisus*, *Hydrophorus seminulum*, *Dineutes angulatus*, *Ochtebicus discretus*, *Cal.*, *O. rectus*, *Cal.*, *O. attritus*, *O. simplex*, *O. tuberculatus*, *N. M.*, *O. levipennis*, *Cal.*, *O. foveicollis*, *O. benefossus*, *N. J.*, *O. sculptus*, *Cal.*, *Rhinoscepsis n. g. bistriatus*, *Rhexius substriatus*, *Trimium convexulum*, *Fla. Ill. Tenn.*, *T. californicum*, *Cal.*, *T. puncticolle*, *Ariz.*, *T. simplex*, *T. discolor*, *La.*, *T. foveicolle*, *Mass.* *Euplectus debilis*, *E. tenuis*, *E. integer* *Mich.*, *E. cavicollis*, *Acylophorus densus*, *A. flavipes*, *Quedius ferox*, *Fla. La. Can. Mass.* *Qu. vernix*, *Mass. Mich. Can.* *Cryptobium floridanum*, *C. texanum*, *Tex.*, *C. californicum*, *Cal.*, *C. flavicorne*, *Mass. L. Sup.*, *C. tumidum*, *Cal.*, *C. prospiciens*, *Tex. Ariz.*, *C. lugubre*, *C. obliquum*, *C. parvum*, *C. lepidum*, *Tex.* *Pæderus oblitteratus*, *Palaminus flavipennis*, *P. normalis*, *Ga. S. C.*, *P. contortus*, *P. cribratus*, *P. pumilus*, *Brachypeplus glaber*, *Smierips n. g. palmicola*, *Scymnus balteatus*, *S. quadriteniatus*, *Oeneis pallida*, *Pentilia misella*, *L. Sup. Fla. Ill. N. Y.*, *P. marginata*, *L. S.*, *P. ovalis*, *Saprinus permixtus*, *Acritus salinus*, *Geotrypes chalybæus*, *Diploaxis languida*, *Anomala semilivida*, *Taphrocerus laevicollis*, *Nematodes punctatus*, *Anchastus longulus*, *A. fuscus*, *A. asper*, *Athous debilis*, *Cypion impressus*, *Lucidota luteicollis*, *Photinus ecostatus*, *P. nitdiventris*, *P. punctiventris*, *Tex.*, *P. collustrans*, *P. umbratus*, *Ozognathus floridanus*, *Hemiptychus debilis*, *H. similis*, *H. abbreviatus*, *H. auctus*, *Catorama punctulata*, *C. holosericea*, *C. minuta*, *C. frontalis*, *Cal.*, *C. sectans*, *Tex.*, *C. obsoleta*, *Cal.* *Dorcatoma granum*, *D. tristriatum*, *Tex.* *Cænocara lateralis*, *C. intermedia*, *N. C.*, *C. californica*, *Cal.* *Byrrhodes n. g. setosus*, *Elaphidium tectum*, *Leptostylus arcuatus*, *Zaplous n. g. Hubbardi*, *Donacia rugosa*, *Diabrotica vineta*, *Oedionychis indigoptera*, *Argopistes scyrtoides*, *Sphaeroderma opima*, *N. C. Tex.* *Chaetocnema pinguis*, *C. protensa* *Mich.*, *C. cylindrica*, *Mich. Mass.*, *C. opacula*, *Cal.*, *C. flavicornis* *Mich.*, *C. obesula*, *C. decipiens* *Ks.*, *C. cribrata* *Mass.*; *Blapstinus fortis*, *B. opacus*, *B. estriatus*; *Dignamptus n. g. stenochinus*, *D. langurinus*, *Phaleria punctipes*,

Platydema crenatum, *Hypophlæus glaber*, *H. piliger Fla. Ga. N. C.*, *H. substriatus Or.*, *H. opaculus S. Cal.*, *H. tenuis Mass.*, *Strongylium simplicelle*, *Xylophilus nubifer*, *Dircæa prona*, *Mordella fascifera*, *M. angulata*, *M. jovialis Tex.*, *M. obliqua Md. Mich.*, *Conotrachelus ventralis*, *C. cognatus*, *C. pusillus*, *C. coronatus*, *Acalles ventrosus*, *A. subhispidus*, *Cryptorhynchus helvus*, *Barilepton bivittatum Ga. Fla.*, *Sphenophorus apicalis*, *Mesites rufipennis*, *Pityophthorus obliquus*, *P. seriatus*, *Cryphalus miles*, *Euxenus piceus*.

Species from Detroit and Lake Superior when no other locality is given.

Dyschirius brevispinus, *Badister obtusus*, *Bembidium arcuatum*, *B. versutum*, *Hydroperus laccophilinus*, *Suphis semipunctatus*, *Laccophilus pumilio*, *Gaurodytes leptapsis*, *G. longulus*, *Hydrobius feminalis*, *H. castaneus Cal.*, *H. cuspidatus Cal.*, *Habrocerus? magnus*, *Agathidium globatile*, *A. parvulum*, *Batrissus simplex*, *Orthoperus scutellaris*, *O. suturalis Fla.*, *O. elongatus Fla.*, *Iathridius opaculus Mich. Ills. Mass. Md.*, *L. maculatus*, *L. duplicatus*, *L. tenuicornis Cal.*, *L. la icollis*, *Odontosphindus n. g. denticollis*, *Eurysphindus n. g. hirtus*, *Mycetophagus confusus* Col.*, *M. tenuifasciatus* N. H. Mich. Col.*, *M. californicus* Cal.*, *Diplocælus angusticollis**, *Rhizophagus brunneus**, *Pedilophorus subcanus*, *Paromalus teres*, *Heterius Blanchardi Mass.*, *Aegialia rufa*, *A. latipina Cal.*, *A. spissipes*, *Phausis inaccensa*, *Xyletinus lugubris L. S. Mass. Nebr.*, *X. pubescens Tex.*, *Micromalthus n. g. debilis*, *Phymatodes maculicollis*, *Typocerus sparsus*, *Chlamys cribripennis*, *Phyllotreta robusta*, *Chaetocnema rudis*, *Mycetochares gracilis*, *M. pubipennis Cal.*, *M. latellus, Pa.*, *M. analis*, *M. lugubris*, *M. marginata*, *M. longula*, *Canifa pallipennis*, *Dircæa fusca*, *Hallomenus serricornis*, *Orchestes canus* Mich. Col.*, *O. mitus* Cal.*, *Zygobaris subcalva*, *Pityophthorus annectens Fla.*, *P. consimilis*, *P. hirticeps*, *P. pusio*, *P. opaculus*, *Xyleborus punctipennis*, *Xylocleptes decipiens*, *Tomicus balsameus N. Y.*, *Micracis opacicollis*, *M. asperulus*, *Choragus Harrisii*.

*Species named by Dr. Horn.

H. Strecker's Catalogue of N. A. Butterflies received.

It is just what beginners want and is indispensable to those further advanced. For the beginner it contains full instructions for collecting, breeding, preparing etc., a plate showing the structure of butterflies and the scientific terms and abbreviations used in works on Lepidoptera; for the more advanced it contains an exceedingly rich synonymy; and for both interesting biographical notes on the authors, their works cited etc.

We heartily recommend the work to our Readers.

Acquisitions of Rare Lepidoptera.

During this year I received from Colorado, a specimen of the rare *Sphinx sequoiæ Boisd.* as far as I know the only specimen thus far represented in any N. A. collection.

From Florida I received a specimen of *Daremma catalpa Boisd.* kindly determined for me by my friend Prof. A. R. Grote.

From the last named locality I also received a specimen of the *Catocala sappho Strecker*, a most beautiful species.

BULLETIN

—OF THE—

Brooklyn Entomological Society.

BROOKLYN, OCT. 1878.

To the Coleopterists and Lepidopterists of the United States.

The principal aims of the Bulletin are :

1. To give Synoptic Tables of the N. A. Coleoptera and Lepidoptera.

The descriptions of the N. A. species have been published in widely scattered papers in England, Germany, France, Russia, Holland, Belgium, Sweden, Italy, etc. It is almost impossible to obtain all these descriptions, or even those that have appeared during the last twenty-five years in this country. It would appear, therefore, to be a valuable and meritorious work to give these Synoptic tables, particularly as in very many instances the size and locality of a species will enable a collector to determine it.

2. To pay special attention to the early stages of our Coleopterous and Lepidopterous species.

The student of this part of entomology will find it more remunerative and interesting than any other, and our *Bulletin* has shown in several instances that the Lepidopterists are further advanced than the Coleopterists in this direction.

3. To present a medium wherein collectors can exchange their experiences, and to afford opportunities for the exchange of duplicate specimens. Many collectors have a greater or less number of fine duplicates, which they might exchange for desirable rare species by offering them in our paper at a cost of 25 cents.

The price of the *Bulletin* is so low (60 cents for 12 monthly numbers), that every collector of Coleoptera and Lepidoptera can afford to subscribe for it in view of its many advantages, and particularly of its Synoptic tables, which begin in No. 1.

The Publication Committee.

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I desire to get by exchange or purchase new N. A. *Aretians* to my collection. Please send list of duplicates. Also wanted *Smerinthus astylus*, male and female, for which I will give a perfect pair (ex larva) *Platysania*, *Gloverii*, *Strecker*.

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H. SCHMELTER.

44 St. Marks place, New York,

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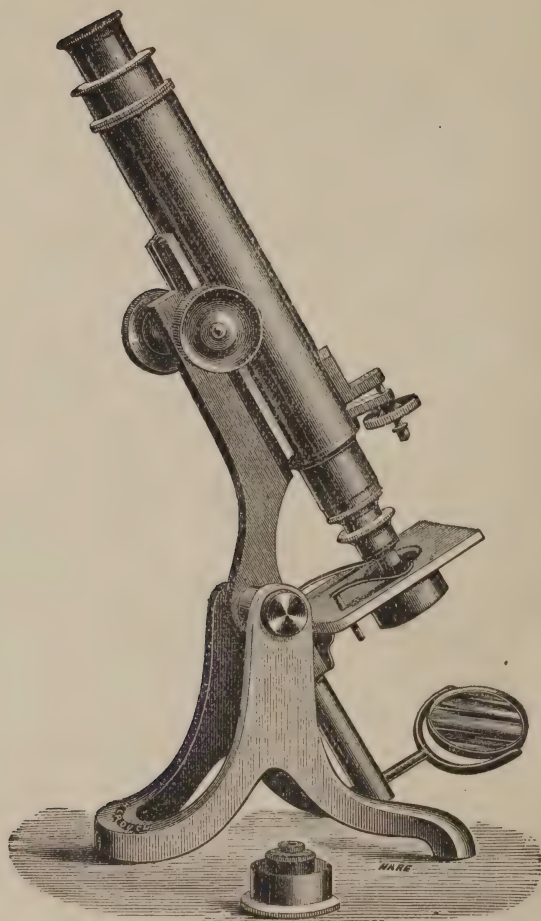
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—OF THE—

Brooklyn Entomological Society.

BROOKLYN, NOV. 1878.

N o. 7.

NOTES

ON

Syneda Gue., *Leucanitis Gue.*, and *Bolina Dup.*

We have in the United States a number of species which we include in the above named genera, but which should be, in my opinion, comprised in the genus *Leucanitis Gue.*

Mr. Grote separates from the genus *Syneda* two species—*S. deducta Morr.* and *S. incandescens Grote*, and creates for them the new genus, *Cirrhobolina*.

I consider *S. deducta* to be a true *Syneda* (*Leucanitis*) being very close to *Graphica Hubn.*,—and *S. incandescens* I take to be only a variety of the first named, differing from it only slightly in the ornamentation of its primaries which difference is (somewhat less marked) also in *S. graphica*.

One species of *Bolina* occurs in Europe? (Amur Region) viz: *B. flavomaculata, Brem.*; but it is so very rare that even Dr. Standinger states in his Catalogue that it is not represented in his cabinet, and I very much doubt if any N. A. Collector has ever seen a representative of the Genus *Bolina*.

Mr. Grote in his "Check List p. 40 states—"the type of *Bolina* is the European *Cailino* etc.," now Lederer (*Noctuinen Europas* p. 199) and Dr. Standinger (*Catalog der Lepidopteren des Europæ Faunengebiets* p. 136) both put *Cailino Hubn.* in the Genus *Leucanitis*.

I have in my collection two species of *Leucanitis* from Europe, viz: *L. Stolidia Fab.*, and *S. cingularis Hubn.*, the first named closely allied to *L. limbolaris Geyer*, and the other nearer to *nigrescens G.* and *R.* of which last named *ochreipennis Harvey* is only a variety. From general appearances *Cingularis* and *Stolidia* are

farther separated from each other than they are from any of our N. A. species.

As I have already remarked, I consider deducta a true *Syneda* (*Leucanitis*), and granting this, I can see no reason for separating this species from that next to it—*pallescens* *G.* and *R.*

S. deducta is the connecting link between the two groups.

The great differences in size of the species I propose to combine in one genus cannot be of any objection, for in a closely allied genus (*Catocala*) we have this in a still greater degree. Take for instance *Catocala amatatrix* *Hubn.* and *C. minuta* *Edw.* What a difference in size is there; but who would think of separating these species generically?!

I propose to have our species stand as follows:

Leucanitis *Gue.*

(*Syneda* *Gue.*

Bolina *Dup.*)

	<i>Leucanitis graphica</i> <i>Hubn.</i>	Atlantic States
	" <i>divergens</i> <i>Behr.</i>	Colorado
	" <i>adumbrata</i> "	Arizona
	" <i>Howlandii</i> <i>Grote.</i>	"
	" <i>ingeniculata</i> <i>Morr.</i>	Texas
*	" <i>hudsonica</i> <i>G. & R.</i>	
*	" <i>socia</i> <i>Behr.</i>	California
*	" <i>ochracea</i> "	"
*	" <i>Edwardsii</i> "	"
*	" <i>tejonica</i> "	"
*	" <i>nubicola</i> "	"
*	" <i>maculosa</i> "	"
	" <i>deducta</i> <i>Morr.</i>	Texas
	var. <i>incandescens</i> <i>Grote.</i>	"
	" <i>jucunda</i> <i>Hubn.</i>	"
	" <i>limbolaris</i> <i>Geyer.</i>	Atlantic States
	" <i>pallescens</i> <i>Gr. and R.</i>	Texas
	" <i>nigrescens</i> "	"
	var. <i>ochreipennis</i> <i>Harvey.</i>	"
*	" <i>fasciolaris</i> <i>Hubn.</i>	
*	" <i>hadeniformis</i> <i>Behr.</i>	California

The species marked with a * I have not seen in nature.

EDW. L. GRAEF

COLEOPTERA OF THE NEIGHBORHOOD OF NEW YORK.

CHRYSOMELIDÆ.

- Donacia*, *Fabr.*
lucida, *Lac.*
distincta, *Lec.*
subtilis, *Kunze.*
Haemonia, *Latr.*
Melsheimeri, *Lac.*
Syneta, *Lac.*
ferruginea, *Germ.*
Lema, *Fab.*
brunnicolis, *Lac.*
trilineata, *Oliv.*
Crioceris, *Geoffr.*
asparagi, *Linn.*
Chlamys, *Knoch.*
plicata, *Fabr.*
Exema, *Lac.*
gibbera, *Fabr.*
Monachus, *Suffrian.*
saponatus, *Fabr.*
Cryptocephalus, *Geoff.*
venustus, *Fabr.*
var. aulicus, *Hald.*
" simplex, *Hald.*
flaccidus, *Suffr.*
calidus, *Suffr.*
incertus, *Oliv.*
sellatus, *Suffr.*
mammifer, *Newm.*
4-maculatus, *Say.*
quadruplex, *Suffr.*
guttulatus, *Oliv.*
dispersus, *Hald.*
auratus, *Fabr.*
Pachybrachys, *Cher.*
M-nigrum, *Mels.*
luridus, *Fabr.*
atomarius, *Mels.*
femoratus, *Oliv.*
litigiosus, *Suffr.*
othonus, *Say.*
hepaticus, *Mels.*
Fidia, *Baly.*
murina, *Cr.*
Xanthonia, *Baly.*
10-notata, *Say.*
villosula, *Mels.*
Heteraspis, *Chev.*
pubescens, *Mels.*
curtipennis, *Mels.*
Chrysochus, *Chev.*
auratus, *Fabr.*
Typophorus, *Chev.*
tricolor, *Fabr.*
Chalcoparia, *Cr.*
globosa, *Oliv.*
Paria, *Lec.*
6-notata, *Say.*
4-guttata, *Lec.*
4-notata, *Say.*
aterrima, *Oliv.*
Colaspis, *Fabr.*
brunnea, *Fabr.*
praetexta, *Say.*
tristis, *Oliv.*
Chrysomela, *Linn.*
clivicollis, *Kirby.*
10-lineata, *Say.*
suturalis, *Fabr.*
similis, *Rog.*
elegans, *Oliv.*
lunata, *Fabr.*
multiguttis, *Stal.*
philadelphica, *Linn.*
Gastrophysa, *Cher.*
polygoni, *Linn.*
cyanea, *Mels.*
Prasocuris, *Latr.*
varipes, *Cr.*
obliquata, *Cr.*
Cerotoma, *Chevr.*
caminea, *Fabr.*
Phyllobrotica, *Redt.*
discoidea, *Fabr.*
Diabrotica, *Chev.*
12 punctata, *Oliv.*
vittata, *Fabr.*
Galeruca, *Groffr.*
americana, *Fabr.*
cribrata, *Lec.*
rufosanguinea, *Say.*
Galerucella, *Cr.*
notata, *Fabr.*
maritima, *Lec.*
Trirhabda, *Lec.*
canadensis, *Kirby.*
Edionychis, *Latr.*
vians, *Ill.*
thoracica, *Fabr.*
thyamoides, *Cr.*
Disonycha, *Chev.*
pallipes, *Cr.*
punctigera, *Lec.*
pennsylvanica, *Ill.*
abbreviata, *Mels.*
collaris, *Fabr.*
collata, *Fabr.*
Graptodera, *Chev.*
ignita, *Ill.*
Orchestris, *Kirby.*
vittata, *Fabr.*
Dibolia, *Chev.*
aerea, *Mels.*
Systema, *Chev.*
hudsonias, *Forst.*
elongata, *Fabr.*
Crepidodera, *Chev.*
Helxines, *Linn.*
atriventris, *Mels.*
Epitrix, *Foud.*
cucumeris, *Harr.*
Chaetocnema, *Steph.*
denticulata, *Ill.*
Blepharida, *Chev.*
rhois, *Forst.*
Stenispia, *Baly.*
metallica, *Fabr.*
Odontota, *Chev.*
scapularis, *Oliv.*
notata, *Oliv.*
scutellaris, *Oliv.*
rosea, *Web.*
inaequalis, *Web.*
Microrhopala, *Chev.*
vittata, *Fabr.*
Chelimorpha, *Chev.*
cassidea, *Fabr.*
Coptocycla, *Chev.*
aurichalcea, *Fab.*
guttata, *Oliv.*
bisignata, *Boh.*

On Distinguishing some of our more Common *Cicindela*e.

Cic repanda, *12 guttata*, *vulgaris* and *hirticollis* have always proved puzzling to beginners. Now, besides their specific character there is another good way to distinguish these four species, viz., by the humeral lunule.



Fig. 7. *a*, *Cic repanda* has for the humeral lunule a regular *c*.

b, *Cic hirticollis* has the posterior end of the *c* bent upwards.

c, *Cic vulgaris* has the same end bent downwards.

d. b. a. c.

d, *Cic 12 guttata* with its varieties *oregona* and *guttifera* has instead of the humeral *c* only the two ends of this letter

The middle fascia, the apical lunule, and the marginal marking may vary ; but the humeral lunule is constant.

F. G. SCHAUPP

Until recently *Cucujus clavipes* has been considered quite rare in this locality. Within the past few weeks, however, it has been discovered in its several stages in great abundance beneath the bark of decayed buckeye and white-poplar trees. The larva is elongate quite depressed, and of a yellowish brown tint. Preparatory to pupation it constructs a slight cell from minute particles of the damp bark, in which it undergoes its further transformations. When full grown the larva is about 23 m.m. in length. The pupa is of a whitish color and considerably flattened. Before the imergence of the imago, the antennae, eyes, and portions of the legs turn black. Length about 14 m.m. Imago with head, thorax, elytra and femora, at first white, but in a day or two gradually assuming their characteristic red color.

Cincinnati, O.

HAROLD B. WILSON.

Omophron robustum, *Horn*, *Coptodera aerata*, *Dej.*, and *Dacne Ulkei*, *Cr.*, were captured somewhat abundantly this season near Cincinnati, Ohio.

CHAS. DURY,

SYNOPTIC TABLE OF LEPIDOPTERA.

Genus *Pieris*, *Schr'k.*

(Continued.)

Pieris Sisymbri, *B'dvl.* Female, wings white; primaries with six elongated black spots on the exterior margin, a black patch bordering on the discoidal cell and approaching the anterior margin, and three or four irregular discal patches of black; secondaries pure white; the veins on the underside of the secondaries are yellow and heavily bordered with black. Expands one and three-eighths inches.—California, Colorado.



Pieris Protodice, *B'dvl.* Male, wings white; primaries with a black patch near the discoidal cell as in *Sisymbri*, but larger and with a whitish line in the centre; apex slightly black with from one to four black discal spots, often very indistinct; secondaries pure white; the underside of secondaries generally with zigzag markings of an olive tint, but sometimes pure white. The female has the black markings on the primaries more intense; the secondaries are white with the veins grayish, and a border of triangular black patches along the exterior margin. Expands from one and three-quarters to one and seven-eighths inches.—U. S.

Variety *Vernalis*, W. H. Edwards, is the spring form of *Protodice* and somewhat smaller.

Varieties *Occidentalis*, Reak., and *Calyce*, W. H. Edwards, are western forms.

Pieris Beckeri, *W. H. Edwards.* Form and size of *Protodice*, to which it is very closely allied; the cellular spot on primaries larger, rhomboidal; the black spots along the outer margin are disconnected; the underside of secondaries are more heavily marked.—Utah, Nevada, Arizona.

Pieris Napi, *Linn.* Variety *Venosa*, Scudder. Wings white, black at base extending along part of the anterior margin, the veins on primaries widening towards the exterior margin into triangular patches of black, heaviest near the apex; a single black discal spot. Expands one and three-quarters to one and seven-eighths inches.—California.

Pieris Napi, *Linn.* Variety *castoria*, Reak. Like the above, but can be distinguished by the absence of the black markings at the base and the apex; discal spot very indistinct. Expands one and three-quarters to one and seven-eighths inches.—California.

Pieris Napi, *Linn.* Varieties *Frigida*, Scudder; and *Oleracea*, *B'dvl.* Same as *castoria* with the absence of all black markings, except that *Frigida* has the veins on the underside of secondaries heavily marked with black. Expands one and three-quarters to two inches.—Habitat of *Oleracea*, U. S. of *Frigida*, Labrador and Anticosti Islands.

Pieris Rapae, *Linn.* Male, pure white with black tips and black discal spot on primaries; secondaries white with a black spot bordering on the anterior margin; underside of secondaries and tips of anteriors light lemon color. Expands one and five-eighths to one and seven-eighths inches.—U. S.

Pieris Rapae, *Linn.* Variety *Novangliæ*, Scudder. Male, entirely lemon yellow.

GENUS ANTHOCHARIS, *B'drl.*

This genus approaches closely to *Pieris*, but has generally an auroral spot near the summit of the primaries: the antennæ are rather shorter: club heavier.

GROUP I.

Anthocharis Ausonides, *B'drl.* Wings white, black at base: primaries with a black cellular spot, and tips black with a white patch bordering on the anterior margin and two small spots near the exterior margin; the same markings appear on the underside subdued and with a greenish tinge; the underside of secondaries white, marbled with olive. Expands one and one-half to one and five-eighth inches.—Colorado, California.



Anthocharis Creusa, *Dbl'dy.* Slightly smaller than the above; cellular spot much larger, rhomboidal; the underside of secondaries with a silvery gloss and more heavily marbled.—Colorado, California.

Anthocharis Olympia, *W. H. Edw'ds.* Wings white; primaries with a black cellular spot and slight black markings towards the apex: the olive markings on the underside of secondaries are slighter than in the preceding species, and the anterior margin with a slight shade of pink. Expands one and one-quarter inches.—West Virginia, Western States.

Anthocharis Sara, *B'drl.* (*Reakirtii*, *W. H. Edw'ds.*) Wings white, black at base: primaries of male with a large bright red apical patch bordered with black, except at the interior margin; secondaries pure white with slight black spots on the veins at the exterior margin; underside of anteriors white, the red patch shows through, though paler and bordered with light yellow at the apex; underside of secondaries white, finely penciled with black: veins orange. Female same as male, but the apex and part of the exterior margin on upperside pale yellow. Expands one and three-eighth to one and three-quarter inches.—Pacific States.

Anthocharis Julia, *W. H. Edw'ds.* Male close to the above, but smaller and black borders more prominent: secondaries pure white: the olive markings on underside of secondaries very heavy. Female, ground color yellow. Expands one and one-third inches.—Colorado.

Anthocharis Cethura, *Felder.* Male, wings white with yellow tinge, black at base, sub-apical patch of primaries pale orange as in female *Sara*; female, wings same color as in male with the orange patch on primaries wanting: markings on underside of secondaries slighter than in *Sara*, but more greenish. Expands about one and one-half inches.—Southern California.

GROUP II. (*Midea*, *H. Sch.*) Anterior wings falcate.

Anthocharis Genutia, *Fabr.* Male, wings upperside white, black at base: primaries with an orange apical patch bordered outwardly with black, and a black discal spot; underside of primaries white, the tips and the whole of the secondaries delicately marbled with gray and black. Expands one and one-half to one and five-eighth inches.—U. S.

ARCTIA VIRGO.

For the last six years I collected during the middle of July *Arctia virgo* and raised from the eggs, obtained from faded females, larvæ, which always hibernated in the larval state. This year I obtained about 50 larvæ, the greater part of which transformed into pupæ at the beginning of October and an imago—full size, perfect—developed October 16th, soon afterwards thirteen imagines appeared.

Some of the larvæ are—although of the same brood, only half grown.

F. G. SCHAUPP.

NEW PUBLICATIONS.

From the Proc. Cal. Ac. Sc., Dec. 17, 1877.

Henry Edwards, *Pacific Coast Lepidoptera*, No. 26, 27, 29, 30, describes the new species :

Argynnis Columbia, *Lycaena Clara*. *Xanthotrix* n. g. *ranunculi*, *Thalpocharis Arizonae*. *Syneda Hastingsii*, *S. mirifica*. *Synedoida* n. g. *biformata*, *S. serupulosa*, *Cirrhobolina tetrica*.

Notes on the transformation of *Thecla irioides*, *Boisd.*, *Cisthene nexa*, *Streck.*, *Saturnia mendocino*, *Behrens*,* *Acronycta spini*, *Grote.*, *Zotheca tranquilla*, *Grote.*

Occurrence of some rare Diurnals in Cal.

Papilio indra, *Reak.*, *Anthocharis Hyantis*. *W. H. Edw.*, *A. Cethura*, *Feld.*, *Midea lanceolata*, *Boisd.*, *Colias Barbara*. *Hy. Edw.*, *Polyommatus cupreus*, *Boisd.*, *Lycæna regia*, *Bdv.*

Notes on the genus *Parnassius*.

Sp.

Dimmocks special Bibliography No. 1. Contains the Entomological writings of John L. Leconte since 1844 till up to this day, compiled by S. Henshaw, Cambridge Nov. 78. It is a very meritorious work, and the Editor promised to bring also the writings of Dr. G. H. Horn, and those of S. H. Scudder.—

* *This species is first described by Mr Behrens under the above name, Can. Ent. VIII., 149.—Grote.*

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BULLETIN.

—OF THE—

Brooklyn Entomological Society.

BROOKLYN, DEC. 1878.

No. 8.

DESCRIPTION

OF A

NEW SPECIES OF CALOSOMA.

BY

J. L. LECONTE, M.D.

Calosoma simplex n. spec. Black, subopaque. Head and prothorax finely rugose and punctulate, the latter more than twice as wide as long; sides strongly margined, rounded in front, oblique behind, more widely reflexed towards the base; base bisinuate, broadly rounded at the middle, hind angles distinctly prolonged, broadly rounded; basal impressions large and deep; dorsal line fine. Elytra slightly wider than the prothorax, oblong, oval, convex towards the sides, which are narrowly margined towards the base and more widely so along the sides; near the base are seen four small acute teeth, as in our allied species; striae not impressed, composed of extremely fine punctures; the punctures of the three dorsal rows are also small and not conspicuous; interspaces alutaceous not distinctly rugose. Tibiae straight.

Length 20.5 mm. Middle California, one male.

COLLECTING INSECTS IN WINTER.

Before the last cold days I collected on a fine afternoon very many coleoptera at the foot of a hill, among which were about 50 *Platynus luteiventris*—more than I captured in six years all together, some other common *Platynus*, as *extensicollis*, *decorus*, *melanarius*, *cupripennis*, *octopunctatus*, *placidus strigicollis*, some *Oodes*, *Anisodactylus*, *Scydmaenidae*, *Staphilinidae*, etc.

The greater part were sitting on the underside of the stones and were moving away very slowly, so that the capture is more easy than during spring and autumn.

F. G. SCHAUPP

ON THE NOMENCLATURE OF A FEW OF OUR BOMBYCIDS.

Among the North American Bombycids there are a few genera which are identical with those in Europe, but for which new genera have been erected here. The reasons for this are entirely groundless and can only tend to confuse a beginner who is studying both our fauna and that of Europe. In our studies and works I think it should be our aim to simplify matters as much as possible, instead of burdening the student with new names that are not required.

The genus *Clisiocampa*, Curtis, is represented in Europe by several species that are in every particular precisely like those of this genus, for instance *Bombyx Neustria*, Linn., which is very close to our *Clisiocampa Sylvatica*, Harris, and *Bombyx Castrensis*, Linn. With the genus well defined and the European species agreeing entirely with ours, it certainly is quite superfluous to erect and adopt a new genus for the American species of the same group. I would therefore refer all of our species of *Clisicampa* to the genus *Bombyx*, Boisd.

Gastropacha Americana, Harris. The name *Gastropacha*, Ochs. applies to a group of the Bombycids, which in Europe has been subdivided into several genera. The above species would come under the genus *Lasiocampa*, Latr. and is even identical with the European *Ilicifolia*, Linn., so that both the generic and specific names must fall and the species be known as *Lasicampa Ilicifolia*, Linn.

Parorgyia, Pack. This genus I think should be referred to *Dasychira*, Stephens. It is true our *Parorgyians* are of rather slighter build in the male sex than the majority of the species of *Dasychira* of Europe, but the characteristics otherwise are the same, and the females of both bear a remarkable resemblance to each other. Both *Parorgyia* and *Dasychira* are at best but a higher form of *Orgyia*, Ochs., the larvæ give full evidence of this, and it would be but proper to combine the two. The male of *Dasychira selenitica*, Esper is slighter than others of that genus, and its proximity to *Orgyia* can easily be traced in its markings, the same as in our species of *Parorgyia*. I cannot therefore see why we should hold on to two generic names in this instance, and would propose to refer all of our species of *Parorgyia* to the genus *Dasychira*, Stephens.

The fauna of our Country bears such close relationship to that of Europe that I think it is but just that we should revise our nomenclature and endeavor to bring it a little more in harmony with that of Europe. It certainly looks strange to see species of the same genus in our collections bearing different generic names in their representatives from this country and from Europe, and a beginner, if he should acquire the species of such genera from both countries, can only be confused in his endeavors to establish in his mind what constitutes a GENUS.

NEBRIA and PELOPHILA appear to be sufficiently distinct to be retained apart.

Nebria.—Anterior tarsus of ♂ moderately or feebly dilated; antennæ slender, joints all cylindrical, equalling in length two-thirds or more the length of the body; scutellar stria of elytra always distinct.

Pelophila.—Anterior tarsus of ♂ broadly dilated; antennæ stout, shorter than half the length of the body, joints 3–4 thicker at tip, joints 3–11 distinctly flattened; scutellar stria obliterated; body robust, *Blethisa* form.

PELOPHILA, Dej.

Hind angles of the thorax rectangular; black, somewhat æneous. They also live in the high North under stones at the edge of the waters.

Horn classifies them (Trans. Am. Ent. Soc., III, p. 104) as follows:

Thorax one-half broader than long.

Elytral striæ deep and coarsely punctured; third stria with 6–7 punctures; legs piceous.....**1. Eschscholtzii.**

Elytral striæ replaced by lines of moderate coarse punctures, third stria with 4–5 punctures, interstices convex; legs black.....**2. rudis.**

Thorax twice as broad as long. Tibiæ brown, femora rufous; third stria with four punctures; interstices flat.....**3. Ulkei.**

1. *P. Eschscholtzii*, Mann. Humm. Essais Ent. III, 40; Bull. Mosc., 1843, II, p. 190. Length 12 mm. Sitka, Methy.

2. *P. rudis*, Lec. (Nebr.) New Spec. 1863, I, p. 3. Methy.

3. *P. Ulkei*, Horn. Trans. Am. Ent. Soc., 1870, III, 105. Hudson Bay Terr.

The following is unknown:

P. californica, Motsch. Ins. Sib., p. 63.

LEISTUS, Fröh.

A small insect of brown color, having the maxillæ armed beneath with spines.

L. ferruginosus, Mann. Bull. Mosc., 1843, II, 187, *ferrugineus*. Dej. Spec., V, 569. Length 36 mm. Alaska to Oregon.



CALOSOMA, Weber.

Large species with mentum tooth simple and third joint of antennæ strongly compressed. They live under stones, etc.

Synoptic Table by Dr. J. L. Leconte.

Anterior tarsi of ♂ with joints 1-4 hairy beneath.

Thorax with sides broadly flattened behind; body elongate, black.

Elytra deeply striate, blue border.....**1. externum.**

Elytra smooth, with a few punctures on the basal half.**2. macrum.**

Elytra with series of fine punctures.....**3. protractum.**

Thorax narrowed behind, sides not flattened; elytra deeply striate.

Elytra gold green with red margin.

Larger; middle tibiæ of ♂ curved and with a dense brush of hairs on the inner surface near the tip.**4. scrutator.**

Smaller; middle tibiæ of ♂ straight, not hairy.**5. Willeoxi.**

Elytra black, with three rows of small bronzed punctures. **6. frigidum.**

Anterior tarsi of ♂ with joints 1-2 only hairy beneath.

Thorax trisinate behind, elytra deeply striate with three rows of golden foveæ.....**7. Sayi.**

Anterior tarsi of ♂ with joints 1-3 hairy beneath.

* BLACK SPECIES without golden spots; striæ of elytra faint and obliterated behind (except in *angulatum*).

Elytra narrowly margined:

Side margin of thorax meets the base in a well-defined angle.

Head coarsely punctured, thorax strongly angulated at the sides.

Elytra deeply striate.....**8. angulatum.**

Elytra faintly striate.....**9. peregrinator.** *p. c.*

Head with a few coarse punctures in front.

Elytra with coarse transverse punctures near the base. **10. lugubre.**

Head finely rugose, not coarsely punctured.

Elytra with a few fine short transverse wrinkles near the base,

11. carbonatum.

Head smooth; thorax narrowly margined.

Elytra nearly smooth, oval; wings feebly developed, **12. Palmeri.**

Side margin of thorax meets the base in a curve.

Thorax slightly bisinuate behind.

Basal impressions slight; elytra nearly smooth.....**13. triste.**

Basal impressions broad, elytra with scaly sculpture,

14. obsoletum.

Thorax emarginate behind, hind angles broad, prolonged.

Without lustre, sides of thorax regularly rounded. . **15. semilæve.**

Without lustre, sides of thorax oblique behind. **16. simplex,** n. sp.

Elytra smooth, more broadly margined, oval; wings wanting, (form robust, nearly as in *triste*).....**17. Haydeni.**

* SLIGHTLY BRONZED SPECIES with rows of golden or coppery spots.

Thorax with broad basal impressions: elytral striae regular. **18. calidum.**

Thorax with small basal impressions: rougher, elytral striae frequently confused and golden spots faint. **19. tepidum.**

* BRONZED SPECIES with three rows of chainlike elevations on the elytra, striae confused.

Thorax less narrowed behind.

Basal impressions broad, wings well developed: elytra oblong-oval, **20. cancellatum.**

Basal impressions shallow; wings wanting; elytra oval, less deeply sculptured **21. subaeneum.**

Thorax more narrowed behind, basal impressions small, wings wanting, elytra oval. **22. moniliatum.**

* BLACK SPECIES with oval or rounded oval elytra, and without wings; thorax emarginate behind with the angles produced.

Outer joints of antennae pubescent as usual:

Elytra broadly oval, with rows of close-set punctures and intermediate rows of more distant punctures. **23. discors.**

Outer joints of antennae pubescent only along the sides:

Elytra longer oval, striae confused, with three dorsal rows of larger punctures. **24. Wilkesi.**

Elytra broadly oval, with distant rows of punctures: sculpture scaly, sometimes nearly smooth:

Hind angles of thorax not broadly rounded. **25. luxatum.**

Hind angles of thorax broadly rounded. **26. latipenne.**

1. *externum*, Say. Journ. Ac. Phil., III, 150.—*longipenne*, Dej. Length 30 mm. East., Middle, South. and Central States.
2. *maërum*, Lec. Trans. Am. Phil., X, 400. Length 27 mm. Texas.
3. *protractum*, Lec. Proc. Ac. Nat. Sci., 1862, p. 52. Length 22–25 mm. Arizona.
4. *scrutator*, Fab. Syst. Ent., I, 239. Length 30 mm. U. S. to Lower California.
5. *Willcoxi*, Lec. Ann. Lyc., IV, 446. Length 18 mm. Atl. & Central States.
6. *frigidum*, Kirby. Fauna. Am. Bor., IV, 19. Length 20 mm. North. States.
7. *Sayi*, Dej. Spec., II, 198. Length 25 mm. East and South States.
8. *angulatum*, Chev. Col. Mex. Cent., I, No. 44. So. Cal. Length 27 mm.
9. *peregrinator*, Guér. Révue Zool., 1844, p. 255.—*prominens*, Lec., Trans. Am. Phil., X, 400.—*angulatum*, || Lec, Ann. Lyc., V, 199. Length 30 mm. Arizona.
10. *lugubre*, Lec. Trans. Am. Phil., X, 400. Length 27 mm. Texas.
11. *carbonatum*, Lec. Proc. Ac. Nat. Sci., XIV, 53. Length 25 mm. New Mexico, Upper Texas, Arizona, Lower California.
12. *Palmeri*, Horn. Trans. Am. Ent. Soc., V, 199. Length 19 mm. Guadelupe Island, Cal.
13. *triste*, Lec. Proc. Bost. Soc., I, 201; Bost. Journ., V, t. 18, f. 9. Length 18 mm. Central States.
14. *obsoletum*, Say. Journ. Ac., III, 149.—*luxatum*, Dej. Spec., II, 96. Length 20 mm. Central States.
15. *semilve*, Lec. Ann. Lyc., V, 199. Length 23 mm. Pacific States.
16. *simplex*, Lec. Bulletin Brooklyn Ent. Soc., Nov. 1878, p. 61. Length 20.5 mm. Middle Cal.
17. *Haydeni*, Horn. Trans. Am. Ent. Soc., III, 69. Length 22 mm. Col.
18. *calidum*, Fab. Syst. Ent., p. 237; Say Tr. Am. Phil., II, 74. Length 22 mm. U. S. var. *lepidum*, Lec. Proc. Bost. Soc., I, 201; Bost. Journ., V, 208, t. 18, f. 8.
19. *tepidum*, Lec. Ann. Lyc., V, 199.—*irregulare*, Walk. Nat. Vanc., II, 342. Length 18 mm. Pacific States.

20. *cancellatum*, Esch. Zool. Atl., V, 23; var. *ænescens*, Lec. Proc. Ac. Phil., 1854, p. 16. Length 19 mm. Pacific States.
21. *subaneum*, Chaud. R v. & Mag. Zool., 1869, Jan., p. 6. Length 17 mm. Cal.
22. *moniliatum*, Lec. Ann. Lyc., V, 200.—*laqueatum*, Lec. Proc. Ac. Phil., 1860, p. 318. Length 17 mm. Oregon, Montana.
23. *discors*, Lec. Ent. Report, 1857, p. 31, t. 1, f. 9. Length 18 mm. Cal.
24. *Wilkesi*, Lec. Ann. Lyc., V, 200. Length 16 mm. Oregon.
25. *luxatum*, Say. Journ. Ac. Phil., III, 149.—*pimelioides*, Walk. Nat. Vanc., II, 312, Length 13–17. Kans., Vanc. Island. var. *stiratus*, Lec. Col. Kans., 1859, p. 4. Utah. var. *Zimmermanni*, Lec. Ann. Lyc., IV, 445. Rocky Mountains.
26. *latipenne*, Horn. Trans. Am. Ent. Soc., III, 70. Length 18 mm. Cal.

CARABUS, Linn.

Very similar in size and form to *Calosoma*, but with the third joint of the antennæ cylindrical. They live under stones, rotten leaves, stumps, etc.

G. R. Crotch classifies them (Trans. Am. Ent. Soc., V, 247) as follows:

Thorax punctate beneath.

Fourth joint of anterior tarsi ♂ much smaller than the third. Elytra with margin not serrate near humerus.....**1. Vietinghovii.**

Fourth joint transverse.

Elytra catenate, margin near base serrate.....**2. Macander.**

Elytra foveolate, margin simple.**3. truncaticollis.**

Thorax smooth beneath.

Posterior angles of thorax hardly produced**4. Chamissonis.**

Posterior angles prolonged, rounded.

Elytra foveate.

Color black or brown, thorax narrowly margined.....**5. tædatus.**

Black with violet margin, thorax broadly margined ..**6. sylvosus.**

Elytra catenate.

Elytra with margin serrate near the humeri.....**7. serratus.**

Elytra with simple margin.

Elytral intervals equal, margin bluish.....**8. limbatus.**

Elytra bronzed, four intervals forming slender costæ, **9. vinetus.**

1. *Vietinghovii*, Adams, Mem. Mosc. III. 170, t. 12, f. 3.—Mann. Bull. Mosc. II. 292.—*fulgidus*, gebler. Length 29 mm. Alaska.
2. *Macander*, Fisch. Ent. Russ. I. 103, t. 10, f. 26.—*Lapilayi*, Casteln. Etud. Ent. p. 89.—*Tatumi*, Mots. Bull. Mosc. 1865, IV. 293. Length 20 mm.
3. *truncaticollis*, Esch. Zool. Atl. V. 22.—Mots. Bull. Mosc. IV. 337, t. 5, f. 3. Length 20 mm. Alaska and Kamtschatka.
4. *Chamissonis*, Fisch. Ent. Russ. I. 88, t. 7, f. 12.—Esch. Mem. Mosc. VI. 100.—*brachyderus* Wied.—*groenlandicus*, Chaud. Length 20 mm. Alaska, Greenland, White Mts., N. H.
5. *tædatus*, Fab. Syst. kl. I. 104. Length 25 mm. var. *Agassii*, Lec. Agass. Lake Sup., p. 200.
- Oregonensis*, Lec. Proc. Ac. Phil. 1854, p. 16; or, *baccivorus*, Fisch. Ent. Russ. I. 87, t. 5, f. 11. Alaska.

NOTES ON SMERINTHUS GEMINATUS, Say.

Some time since I mated a female *Smerinthus geminatus*. Both male and female were of the normal form of this species. From the eggs deposited by the female, over thirty imagines were obtained. About half of these were of the normal form. Of the remainder, one, a male, was a perfect specimen of the variety, *Jamaicensis*; and the rest filled every gradation between it and the type form. One specimen had but one or two blue scales to represent the second ocellus. In every case it was the inner ocellus which showed a tendency to be lost. The outer one seemed nearly constant, except in position. As the inner one faded, the outer one approached a little the center of the black space which became at the same time less elongate. I have also one female, though not from the same brood, in which a few blue scales represent a **third** ocellus.—It is in a line with the other two, and nearer the base of the wing than they.

GEO. D. HULST.

On raising Coleoptera.

Some of the readers of the Bulletin may expect a report of the results of my labors in breeding larvæ—see Bulletin p. 36.—

I have to state, that all the inmates of my cages were dead except those in the third containing *Chlaenius* and *Galerita* which were intrusted to the care of my friend Mr. Wm. Kampfmüller. These were all alive and I found different larvæ in the earth after a superficial investigation.

But owing to professional duties I had no time to investigate carefully and afterwards a heavy storm blew the box from a third story window down to the street, where it was smashed and the contents washed away by the rain to my great sorrow.

During my stay in the country this year I raised from the larvae, *Dicaelus dilatatus*, *D. elongatus*, *D. politus*, *Staphilinus maculosus*, see Bull. p. 42. *Leistrophus cingulatus* and *Galerita janus*, of which I shall give more particulars in our next number.

F. G. SCHAUPP.

NEW PUBLICATIONS.

Dr. Horn has in hand a Synopsis of our species of *Cychnus*, some proof sheet of which I have seen; I hope to present extracts from it in our February number, when the publication is complete.

F. G. S.

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F. G. SCHAUPP.

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SCARABAEIDAE wanted; by exchange, or purchase.

CHAS. N. HOYT., 1102 Fulton Ave., Brooklyn, N. Y.

CHAS. FUCHS.: No. 14 Bond Str., New York,

WILL pay good prices for Nos. (Crotch's check list) 3205, 3206, 3207a, 3209, 3210, 3211, 3214. Also wanted Scarabaeidae in exchange.

I desire to get by exchange or purchase new N. A. Aretians to my collection. Please send list of duplicates. Also wanted *Smerinthus astylus*, male and female, for which I will give a perfect pair (ex larva) *Platysamia Gloverii*, *Strecker*.

EDW. L. GRAEF., 40 Court Str., Brooklyn, N. Y.

H. SCHMELTER.

44 St. Marks place, New York,

WANTS in exchange or by purchase *Cryptocephalidae* of Mexico and the West Indian Islands. Also the following species of our fauna [Nos. according to Crotch's check list], 5584, 5585b, 5586, 5591, 5594, 5600, 6505, 607, 5608, 5618, 5619, 5621, 5622. Also *Cryptoc. nigerrimus* Cr., *insertus*, Hald., *lixus* Newm., *punctipes* Say., *quadrifrons* Newm.

BULLETIN

—OF THE—

Brooklyn Entomological Society.

BROOKLYN, JAN. 1879.

No. 9.

RAISING COLEOPTERA.

BY F. G. SCHAUPP.

I must acknowledge, the first impulse to study the early stages of coleoptera was given to me by the fact, that so very many specimens looking exceedingly alike are of different species; and that for some time I hoped, by knowing the larvæ it might be possible, to define more distinctly one species from another.

Well, I see I was therein greatly mistaken, I ought to have known that the germs and primary stages of allied species resemble each other much more closely than do the imagines. I forgot the school-lesson regarding the affinities of the embryos of different genera of the higher orders of the Animal Kingdom.

Fritz Muller says : The more two adult species resemble each other in general appearance and the closer, therefore, they stand related in the animal Kingdom, the longer their embryonic forms remain identical and are distinguishable, if at all only by points of secondary importance.

I have now raised *Dicælus dilatatus*, *D. elongatus* and *D. politus*, I have seen at Dr. Horn's three larvæ of a Southern *Dicælus* (*costatus* or *splendidus*?) and there are less differences in those larvæ than are in the imagines of the same species. Mr. H. B. Wilson in Cincinnati has raised *Dicælus purpuratus*, which also differs chiefly by its color from *D. dilatatus*.

Now as a rule it seems to be very difficult to obtain additional points for the distinguishing the species by studying the larvæ. but no doubt there may be obtained some other knowledge of the greatest interest.

Take for instance the placing in the position the genus *Loricera*, which according to Dr. Leconte's classification stands in the neighbourhood of *Blethisa* under the subfamily of *Carabidae*, while by Gemminger and Harold (see Catalogus p. 210) it is placed between *Panagaeus* and *Chlaenius* (Leconte's subfamily *Harpalidae*). Now if the larva of *Loricera* resembles more that of the first than that of the second subfamily, the species should be placed accordingly.

Further by raising larvae from males and females of the same species, different species based on very slight differences might be united, and by a cross-copulation between allied species we possibly could also diminish the number of our species; the first method may be adopted with *Pterostichus*, *Harpalus* etc., the second with *Cicindelae*.

I take the opportunity to suggest a plan for raising *Cicindelidae* which may be executed very easily without great cost by many collectors.

Take a box containing several square feet and of about two feet in depth; put six inches of earth at the bottom, then fill it with sand; place it in the garden, and put on it a cover of very fine wire-cloth one foot high; in the middle put a flat tin-pan with water and some pieces of turf around, and I have no doubt, *Cicindelidae* may be raised.

To make the study of larvae somewhat easier, we shall bring in the Bulletin some excerpts of the literature on this subject, as well as a list of the described larvae of N. A. Coleoptera and we hope to be assisted herein by other gentlemen interested in the matter.

Last summer I used more care in searching for larvae, than in collecting imagines and the following excerpts of my diary will show, with what success.

I had no cages, but obtained a dozen fruit-jars of glass and several small tin boxes such as are sold in the stores filled with pepper, cinnamon and other spices. I put in every jar or box some earth, dry leaves and pieces of rotten wood and covered them with mosquito-netting. In each vessel was of course but one larva.

1. About the first of August I found in a hemlock log, several *Clinidium conjugens* with a few thin, small, lively larvae, which

I took for the larvae of *Clinidium*, but Dr. Horn to whom I sent some specimens, thinks they were those of *Lebia*. All died.

2. Aug. 3. I found the first larva of what proved afterwards to be *Staphilinus maculosus*, under a stone (pupa Aug. 19., Imago Sept. 6.) see Bull. p. 42.

Larvae of the same species were found under stones and pieces of wood at the following dates.

Aug. 3., died in the larval state Sept. 2.

“ 3., transformed into pupa Aug. 21; imago developed Sept. 7.

“ 14., died as larva Sept. 2.

“ 14., transformed into pupa Aug. 19., put in Alcohol.

“ 14., “ “ “ “ 15; imago developed Sept. 1.

“ 19., “ “ “ Sept. 1., put in Alcohol.

“ 20., “ “ “ Aug. 23., died Sept. 10.

The larvae lay hidden always, but when presented with food they seize and suck it very quickly. They were fed with soft wood-boring larvae, flies, caterpillars and during a few rainy days with ants-pupae; but they preferred the soft, milky larvae of coleoptera to any other food.--They were the most rapacious creatures. A notice in W. R. Erichson's Contributions to a Systematic Knowledge on Larvae of Insects stating that the larvae of the carnivorous coleoptera have two claws, puzzled me about these larvae as that of *Staphilinus maculosus* as well as that of *Leistotrophus cingulatus* has but one claw.

3. Aug. 15. I found two larvae of a very similar appearance to the above, but about half the size, one of them died Aug. 21., the other transformed into a pupa Aug. 26., (at night) the imago developed Sept. 5. and proved to be *Leistotrophus cingulatus*.

Aug. 17. larva found, died Aug. 21.

“ 17. another found, transformed into pupa Aug. 22., was eaten by a mouse.

“ 19. another, which escaped Aug. 21.

“ 23. “ moulted at noon Sept. 2.

“ 24. “ died Aug. 25.

They were treated in the same manner as were the above.

4. Aug. 7. I found under stones near the border of a wood a larva much resembling that of *Dicaelus dilatatus*, which I had raised the previous year, but much smaller, and but slightly dif-

fering [see Bull. p. 43]; it transformed into pupa Aug. 9., imago developed Aug. 19., and proved to be *Dicaelus elongatus*.

Aug. 12. similar larva found, transformed into pupa Aug. 15., imago developed Aug. 25

“ 13. larva found, transformed into pupa Aug. 17., put in Alcohol.

They are very sluggish and seldom touch the food during day-time, while the larvae of Staphilinidae seize it very eagerly: but the *Dicaelus* made their transformations usually at noon, while the Staphilinidae made them at night.

5. Aug. 12. I found a larva of *Dicaelus dilatatus* in the same place as those of *D. elongatus*, it transformed into pupa Aug. 20., imago developed Aug. 28., another larva of the same species was found Aug. 12; Aug. 19. it began to split the thoracic parts of the larval skin, but died Aug. 20.

Aug. 13. I found a small larva of the same species, looking steel-blue, but as it became larger it looked exactly like the other, about Sept. 3., it was full grown and died, being attacked at the abdomen by little worms.

6. Aug. 25. I found a larva also, but slightly differing from those under 4. and 5., [see Bull. p. 44.] which transformed into pupa Aug. 30., imago developed Sept. 7.,—just while I was showing my larvae to the members of our Society at a regular meeting and proved to be *Dicaelus politus*.

Larvae of the same species found Aug. 22. and 28., died Sept. 6.

7. Aug. 12. I found under stones at the same place where I had found the other larvae, two pupae which I considered to be *Galerita janus*, having seen the sketches in Packard's Guide and read H. G. Hubbard's description in *Psyche* vol. I. p. 49; next day the imago of one developed; the other was put in Alcohol.

The same day Aug. 12. I found also a larva; it transformed into pupa Aug. 13., the legs became yellow Aug. 21., imago developed Aug. 24., it remained one day white, the second day the elytra became gray and the thorax light yellow, the third it was regularly colored.

Aug. 12. I found another larva of the same species, which transformed into pupa Aug. 22., was put in Alcohol.—

(To be continued.)

SYNOPTIC TABLE OF LEPIDOPTERA.

8. *Anthocharis Lanceolata*, *Bdvl.* Wings, upperside white, black at base; primaries upper and underside with faint black shadings at the apex and a black spot bordering on the discoidal cell. Underside of secondaries densely marbled with light brown, veins prominent, brown. Expands about $1\frac{3}{4}$ inches. Cal.

GENUS CALLIDRYAS, *B'dvl.*

Palpi much compressed, with short hairs, last article conical; antennæ of moderate length, truncated, slightly arcuated, enlarging insensibly from the base to the extremity; body robust, abdomen much shorter than the secondaries; wings robust, discoidal cell closed. The *Callidryas* are large insects, varying in color from pale yellow to a bright orange, and having ordinarily one or more silvery or ferruginous spots on the underside of the secondaries.

1. *C. Eubule*, *Linn.* Fig. 4. Male, all wings above and below pale yellow with a very slight border of brown, somewhat heavier at the veins; underside of primaries with a ferruginous cellular spot, which appears slightly through on the upperside; underside of secondaries with two discoidal silvery spots, encircled with ferruginous. Female, same as male, markings much heavier, and the cellular spot on the underside of primaries double and silvery. Expands $2\frac{1}{2}$ to $2\frac{5}{8}$ inches. U. S.

Female variety *Sennæ*, *Linn.* Ground color pale dirty yellow, markings heavier.

2. *C. Argante*, *Fabr.* Male, wings above light orange, below bright yellow, with markings both above and below as *Eubule*, but heavier. Female, like *Eubule* var: *Sennæ*, only heavier marked and slightly transparent. Expands same as *Eubule*. Fla.

3. *C. Philea*, *Linn.* Male; wings yellow, primaries with a patch of light orange near the anterior margin, but nearer to the base than the exterior margin; secondaries with shadings of the same color along the exterior margin, almost approaching the anterior angle; underside bright yellow, discoidal spots ferruginous, heavier in the primaries.

Female; primaries yellow, brown at the apex, and with a row of marginal and submarginal spots of the same color; discoidal spot black; secondaries yellow with a broad rose colored band extending along the exterior margin, and five marginal brown spots; underside pale rose color, deeper at base, with brownish markings; discoidal spots white bordered with ferruginous. Expands about $3\frac{1}{4}$ inches. Tex., occasional; also Ill. (W. H. Edwards.)



Fig. 4.

GENUS KRICOOGONIA, *Reak.*

Head broad; labial palpi larger than the head; antennæ short, rather slender, ground below, enlarging from the lower third towards the apex, more abruptly clavate than in *Gonepteryx*, *Leach*; thorax stout, covered with fine long hairs; wings destitute of prominent angles and more or less rounded; abdomen rather short, not as long as the abdominal margin of the posterior wings.

K. Lyside, *Gott.* Wings dirty white, yellow at the base; beneath, primaries white, secondaries yellowish; the male has two black dashes near the anterior angle. Expands 2 inches. Tex.

Bull. Brookl. Ent. Soc. Jan. 1879.

GENUS COLIAS *Fab.*

Inferior palpi much compressed, covered with short silky hairs, generally rose red, last article much shorter than the preceeding; antennae straight, short, rose red, terminating in an obtuse cone, which extends more than a fourth of their length; abdomen shorter than the secondaries; thorax robust; color more or less lively yellow and orange, border black.

It seems that nearly all of this group have their female albino varieties.

Group I. [*Meganostoma*, *Reak.* Wings slightly falcate.]

1. *C. Cæsonia*, *Stoll.* Male; wings yellow; primaries with a black basal patch; cellular spot black; a broad irregular field of the same color covering nearly the entire disk, the indentations of which form the distinct outline of a dogs head, of which the discoidal spot form the eye; secondaries with a black border denated within, and two large discoidal orange spots; underside bright yellow, discoidal spots silvery, circled in primaries with black, in secondaries with ferruginous.

Female same as male, but less bright and with one or more yellow streaks on the black field near the apex; the border on secondaries is slighter and disconnected. Expands 2 to 2½ inches. U. S.

A female variety from the West has the upperside more heavily marked with black, and the underside of secondaries and the apex of primaries beautiful rose red.

2. *Eurydice*, *B'dvl.* Male; ground color bright orange with a purple reflection on primaries; markings both above and below much the same as the above. Female dirty yellowish white, discoidal spot on primaries black; underside of primaries dirty white with a greenish tinge, of secondaries light green. Expands 2 to 2¾ inches. Cal.

Group II.

3. *C. Philodice*, *Godt.* Male, ground color lemon yellow; wings bordered with black, wider at the apex; discoidal spot in primaries black, in secondaries bright yellow; underside of primaries pale yellow with a submarginal row of small black spots; discoidal spot black with a yellow streak; secondaries bright yellow with a row of brown spots parallel to the margin, and a small patch on the costæ; two ferruginous discoidal spots, the larger one with a silver center; fringes pink. Female, ground color paler yellow; borders broader, more or less macular in primaries; underside as in male, but with a greenish tinge on secondaries and markings generally heavier. Expands 1¼ to 2¼ inches. U. S.

White female variety.—

4. *C. Occidentalis*, *Scudder.* Male, upperside same as the above, excepting the discoidal spot, which is substituted by a pale black ring; underside pale yellow; a single discoidal spot on secondaries, bordered by ferruginous; fringes pink. Female; wings pale yellow, the secondaries sometimes without a marginal band; that of primaries is broad, faintly marked, consisting merely of patches of gray scales enclosing large yellow spots; discoidal spots larger and heavier than in the male; fringes pink. Expands 2 inches. Brit. Am.

White female variety.—

5. *C. Alexandra*, *W. H. Edwards.* Male; upperside pale yellow with black borders and black discoidal spot on primaries, that on secondaries is white, hardly discernable; underside of primaries pale yellow, of secondaries greenish; the discoidal spot on secondaries is small, pearl white. Female; ground color somewhat paler, discoidal spot on primaries large, black; the border on secondaries is absent, on primaries, macular, very faint, sometimes almost entirely wanting; underside same as male. Expands 1⅞ to 2⅞ inches. Cal.

On the
Pupae of *Platysamia gloverii*, *Strecker*.

I received again (this time from Wyoming) a few cocoons of *Platysamia gloverii*, *Strecker*. and as I have at hand a number of *cecropia* cocoons, I have compared the two species.

The differences I find are:

The cocoons of *gloverii* are of a uniform silvery grey while those of *cecropia* are of a light brown color.

In shape the cocoons of *gloverii* are round at one end and taper at the other while those of *cecropia* taper at both ends.

The cocoon of *gloverii* is a great deal smaller than *cecropia*, its texture is more compactly spun, consequently the cocoon is firmer.

On cutting open the outer case of the cocoon of *gloverii*, we find the inner cocoon, and the inside of the outer case to be of a chocolate brown color, while in *cecropia* the color is light yellowish brown.

The pupæ are very much alike, and the only differences I can find are that *gloverii* is rougher, and darker in color.

There is now no doubt of the two species being distinct as the differences are well marked in every stage of their existence.

My friend Mr. O. Meske of Albany has raised *gloverii* from the egg, and assures me the larva is totally unlike that of *cecropia*.

EDW. L. GRAEF

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I have Nos. 1. 5. 8. 14. 15. 21a. 27. 28. 30. 30a. 32. 33. 38. 41. 43. 45. 50. 51. 56. 57. 63. (Crotch check list) to exchange for other good Cicindelidae or rare Carabidae.

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CHAS. N. HOYT., 1102 Fulton Ave., Brooklyn, N. Y.

CHAS. FUCHS.: No. 14 Bond Str., New York,

WILL pay good prices for Nos. (Crotch's check list) 3205, 3206, 3207a, 3209, 3210, 3211, 3214. Also wanted Scarabaeidae in exchange.

Histeridae. I am now working at this group, and am very desirous to obtain Canadian specimens especially of those which are bark feeders. In one Museum here, there is a very fine species of Teretriusoma labelled 'Canada' and it would be very interesting to have this confirmed as a Canadian species by a working Entomologist as it is a very northern locality for this genus. If any Entomologist would send me any Histeridae, in a small box during the ensuing summer, I should be extremely indebted to them, and will return specimen duly named, unless they are such as are already known to the senders.

Specimens would come, if loose, between 2 pieces of cork in an envelope.

George Lewis, 79 Upper Thames Street,
LONDON. ENG.

BULLETIN

—OF THE—

Brooklyn Entomological Society.

BROOKLYN, FEB. 1879.

No. 10.

FOR THE BULLETIN.

A new *Catocala*

Among the interesting material brought by Mr. Albert Kœbele from Florida is a new species of *Catocala* which I have called *Catocala Sinuosa*. This form is allied to *C. coccinata*, Grote, and has bright crimson hind wings. It is remarkable for the reduction of the median band to a narrow sinuate black mark not reaching either margin and merely crossing the disc of the wing. The fore wings are much as in *C. coccinata*, but paler, whitish gray, the transverse lines much as in its congener. The under surface of both wings is largely stained with bright red and here the median fasciæ are very narrow.

On hind wings the median fascia is discontinued inferiorly. On hind wings above the black marginal band is tolerably even, continuous, terminating just before anal angle. This form, which is of the size of *Coccinata*, cannot be confounded with the Texan var. *Circe* of *coccinata*, which seems to intergrade with the type.

C. sinuosa is remarkable among our North Am. *Catocala* for the abbreviation and narrowness of the band on the hind wings, on their upper surface; it reminds one of an exaggerated discal mark rather than the customary fascia.

A. R. GROTE

We always strongly object to the creation of new genera and species on slight differences, and for this reason we are sorry to take exception to what Mr. Grote says regarding his new species above.

Mr A. Koebele found five specimens of this *Catocala* on white oak from May 2 till May 12. In three of these now before us the median bands differ greatly in width and length, in one it reaches nearly the anterior margin and the color of the surface of the primaries is exactly like that of *C. coccinata*, and not paler.

We do not like to disagree with so competent an authority on Lepidoptera, as Mr. Grote, and while subsequent captures of this insect may confirm his views, we fail nevertheless, after a careful comparison of his points of specific differences with three of the specimens, to detect sufficient grounds for the formation of a new species.

EDITOR.

RAISING COLEOPTERA.

(Continued from page 72.)

The larvæ of *Galerita janus* are the most fragile and tender that fell into my hands, the whole body seems always to be empty and even by a very slight pressure become flat, those of *Dicælus* are fat and fleshy, but considerably strong, those of *Staphilin* *maculosus* and *Leistotrophus cingulatus* are hard and horny.

Besides these larvæ I had several others and I have used at least 200 as food for the specimens I have raised. If it had not been my aim to raise chiefly carabidous larvæ, I might have raised also of other families, as I saw many larvæ of small *Staphilinidæ*, *Mycetophagidæ*, *Dacne heros*, *Bolitotherus cornutus*, etc. in the tree fungi, and of *Elatridæ*, *Cerambycidæ* etc., in decaying wood.

I found also while digging near a decaying stump of a tree, one to two feet below the surface, a very large number of *Phenolia grossa*, *Fab.*, in the larva, pupa and imago state, the pupæ imbedded in oblong holes; then I found under the bark of a fallen tree a number of larvæ, similar to those of *Trichius confinis* in cylindrical cases made of some green leaves, oval at one end and flat at the other.

I sprinkled every day a few drops of water over the larvæ and placed them for about an hour in the open air.

F. G. SCHAUPP.

6. *sylvosus*, Say. Trans. Am. Phil., II, 75.—*jinitimus*, Hald. Stansb. Exped., p. 373, (a somewhat narrower form with more distinct punctures).—*Lherminieri*, Dej. Spec., II, 152. Length 27–30 mm. N. Y. to Texas.
7. *serratus*, Say. Trans. Am. Phil., II, 77.—*lineatopunctatus*, Dej. Length 20–25 mm. East and Middle States.
8. *limbatus*, Say. Trans. Am. Ph., II, 77.—*Goryi*, Dej. Spec., V, 544. Length 25–28 mm. East, Middle and Central States.
9. *vinctus*, Web. Obs. Ent., 1801, p. 42.—*interruptus*, Say. Trans. Am. Phil., II, 62. Length 25–30 mm. U. S.
 var. *carinatus*, Dej. Spec., II, 80.
 var. *ligatus*, Germ. Ins. Spec., Nov. 1824, p. 6. Lec. Ann. Lyc., IV, 144.



NOMARETUS, Lec.

Head elongate, labrum deeply bilobed; epipleura very broad. Antennæ with three glabrous joints; striæ of the elytra not exceeding twelve. They live on woody hills of the Atlantic Slope and are quite rare.

Synoptic Table by Dr. G. H. Horn.

Sides of thorax oblique, hind angles obtusely rounded.

Elytra with more than 11 striæ on each.

Thorax with disc impunctured.

Striæ of elytra distinct, the punctures fine and approximate. **1. bilobus.**

Striæ of elytra feeble, punctures coarser and distant. . . . **2. fissicollis.**

Thorax with coarse punctures on the disc. **3. cavicollis.**

Elytra with 4 imperfect striæ on each. **4. imperfectus.**

Sides of thorax sinuate, hind angles rectangular, but not prominent. . . **5. debilis.**

1. *bilobus*, Say. Trans. Am. Phil., II, 73; Lec. Trans. Am. Phil. Length 14 mm.

Mo., Lake Sup., Ohio.

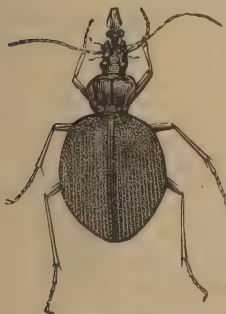
2. *fissicollis*, Lec. Trans. Am. Phil., X, 399. Length 11 mm. Ills., Kansas.

3. *cavicollis*, Lec. Col. Kans., p. 3. Length 12 mm. Kansas, Texas.

4. *imperfectus*, Horn. Proc. Ac. Nat. Sc., 1860, XII, 569. Length 10 mm. Pa.

5. *debilis*, Lec. Trans. Am. Phil., X, 399. Length 9 mm. Ga.

CYCHRUS, Fab.



This genus contains species of graceful, sometimes slender form. The head is elongate, the mandibles slender and prominent, the four basal joints of antennæ glabrous. The legs are long, usually slender and well adapted for rapid running. The elytra have numerous striæ, from 14–18, sometimes irregular or even replaced by tubercles. They live in moist woods, hiding under stones and rubbish, feeding on snails, their long head being well adapted for extracting the animal from the shell.

Dr. Horn published in the Trans. Am. Ent. Soc., VII, p. 168–185, a synopsis from which we give the following extract:

Anterior tarsi broadly dilated in the male.

Genæ dilated covering the maxillæ.

Legs stout, femora subclavate. **SPHERODERUS.**

Anterior tarsi narrowly dilated in the male, the dilated joints always longer than wide.

Genæ not dilated, maxillæ exposed, legs slender.....**SCAPHINOTUS.**

Genæ dilated, maxillæ covered.

Inner lobe of maxillæ with a row of long stiff bristles, legs very elongate, the posterior unequal in the sexes. Elytra very feebly sculptured.....**PEMPHUS.**

Inner lobe of maxillæ with, at most, a few hairs and some silken pubescence, legs moderate, similar in the sexes. Elytra striate or punctate.....**BRENNUS.**

Anterior tarsi of male not at all dilated.

Genæ dilated, covering the maxillæ, legs moderately stout....**CYCHRUS.**

SPHÆRODERUS, Dej.

Basal impressions of thorax broad and deep, and with coarse deep punctures more or less confluent.

Elytra oboval, sculpture decidedly granular.....**1. nitidicollis.**

Basal impressions of thorax linear and not very deep, the punctures rather fine and not confluent.

Hind angles of prothorax very obtuse.....**2. stenostomus.**

Hind angles of prothorax well defined.....**3. canadensis.**

SCAPHINOTUS, Latr.

Anterior tarsi of male moderately dilated, the first three joints papillose beneath.

Thorax very widely margined, the hind angles prolonged backwards.

First joint of the anterior tarsi of the male papillose over three-fourths of its surface.....**4. elevatus.**

Thorax with moderately widely reflexed margin. First joint of the anterior tarsus of the male with a slight papillose space at tip, **5. viduus.**

Thorax with very narrow margin.

Anterior tarsus of male as in *viduus*.....**6. Guyotii.**

Anterior tarsus of male as in *elevatus*.....**7. Ridingsii.**

Anterior tarsi of male more distinctly dilated and densely spongy pubescent beneath, the first joint so clothed over nearly its entire surface.

Thorax very narrowly margined.....**8. Andrewsii.**

PEMPHUS, Motsch.

The inner lobe of maxillæ is furnished in this subgenus with a row of long stiff bristles, while all the other species of *Cychnus* have there merely silken hairs with a few shorter and stiffer hairs placed in a corresponding row. The femora of the male are longer than those of the female.

We have but one species.....**9. angusticollis.**

BRENNUS, Motsch.

Head cristate to a greater or less extent, gula deeply transversely impressed.

Basal joints of antennæ very stout and longer than the third, genæ deeply incised.

Anterior tarsi of male with three joints pubescent beneath, fourth with a brush of hair.

Front strongly cristate, occiput deeply transversely impressed, basal impression of thorax deep. Elytra with rows of moderate punctures which are often more or less confused. **10. cristatus.**

Front feebly obtusely carinate, occiput not impressed, basal impression of thorax feeble. Elytra striate, striæ distantly punctured, **11. rugiceps.**

Head feebly convex, gula not transversely impressed, genæ more or less incised. Basal joint of antennæ normally slender.

Anterior tarsi of male with three joints papillose beneath, the fourth also with a few papillæ.

Thorax much wider than long, strongly constricted posteriorly, disc of elytra not much convex..... **12. cordatus.**

Thorax cordate, not wider than long, elytra with convex disc.

Sides of thorax posteriorly oblique with scarcely a trace of sinuation, elytra cupreous with greenish or golden margin,

13. marginatus.

Sides of thorax distinctly sinuate, hind angles rectangular, elytra slightly purplish..... **14. dissolutus.**

Anterior tarsi of male with the first three joints papillose beneath, the fourth without papillæ.

Elytral striæ not exceeding 14 in number..... **15. interruptus.**

Elytral striæ 16-18 in number.

Sides of thorax posteriorly oblique.... **16. obliquus.**

Sides of thorax posteriorly sinuate.

Elytra striate punctures rather fine.

Thorax usually longer than wide, feebly sinuate posteriorly, margin very narrow and very feebly or not at all reflexed, elytral striæ scarcely at all confused at the sides..... **17. striatus.**

Thorax wider than long, sides posteriorly deeply sinuate, margin wider and distinctly reflexed, outer three or four elytral striæ much confused behind the middle..... **18. ventricosus.**

Elytra with extremely fine striæ, punctures large. **19. mimus.**

Anterior tarsi of male with the first two joints only papillose.

Thorax posteriorly slightly sinuate, not constricted, surface subopaque, elytra ovate.

Elytra finely striate, striæ with rather coarse deep punctures,

20. punctatus.

Elytra without striæ, but with rows of rather fine punctures,

21. subtilis.

Thorax posteriorly constricted, sides posteriorly deeply sinuate, surface moderately shining, elytra longer oval.

Elytra finely striate, striæ finely punctured, the alternate intervals behind the middle with a row of punctures,

22. striatopunctatus.

CYCHRUS, Fab.

Front flattened, sides of thorax sinuate posteriorly, elytra with series of tubercles..... **23. tuberculatus.**

Front transversely convex, sides of thorax oblique, elytra rugulose with traces of tubercles at declivity..... **24. Hemphillii.**

Front carinate, thorax angulate at middle, base slightly prolonged, hind angles rectangular, elytra finely punctato-striate..... **25. angulatus.**

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Notes on *Deiopeia bella*, Linn.

Deiopeia bella, Linn. was in my experience always an extremely local species. Sometimes in my rambles, one would start up before me, and by search in the vicinity I would generally secure a dozen or more; while perhaps not another would be met during the season. Last September I had excellent evidence of the local tendency of this species, or at least of the fact that it is not often found far from its food plant.

A friend reported that by accident he had found a place where the moth was plentiful; we went together to the place the next day; it was an artificial depression, flat on the bottom, about 300 by 150 feet in extent, and with steep banks 6 to 10 feet in height, and was part of an unused grass field. The place was alive with the beautiful moth, they rose before the feet of one walking in swarms.

A dozen might have been taken with one sweep of the net. But outside of this depression, hardly a moth was found, and those very near by it. The ground was thickly covered with the food plant, the common rattle box, *Crotalaria sagittalis*, Linn.; and the seed vessels, almost without exception, showed a circular hole in the side, the work of the larva of the moth.

Some interesting varieties were taken. A few of the bright red form *D. speciosa*, Walk. a few others as light as *D. ornatix* Linn. and many varied greatly as to the amount of black on both upper and lower wings, some having almost none.

The record leads us to believe in the suggestion of Mr. Stretch that *bella*, *speciosa*, and *ornatrix*, are nothing more than varieties of the same species.

GEO. D. HULST.

In Mr. Graef's article on the Pupæ of *SAMIA GLOVERI* he states that a friend who had raised this species from the egg assures him the larva is totally unlike that of *CECROPIA*. I would merely mention in connection with the above that the larva has been fully described and the points of difference between it and the allied species, *COLUMBIA*, *CECROPIA* and *CEANOTHI* noted in detail in the 2d vol. of the Proc. of the Davenport Acad. of Nat. Sc. p. 276-278. (1878) HERMAN STRECKER.

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WILL pay good prices for Nos. (Crotch's check list) 3205, 3206, 3207a. 3209. 3210, 3211, 3214. Also wanted Scarabæidae in exchange.

Histeridae. I am now working at this group, and am very desirous to obtain Canadian specimens especially of those which are bark feeders. In one Museum here, there is a very fine species of Teretriusoma labelled "Canada" and it would be very interesting to have this confirmed as a Canadian species by a working Entomologist as it is a very northern locality for this genus. If any Entomologist would send me any Histeridae, in a small box during the ensuing summer, I should be extremely indebted to them, and will return specimen duly named, unless they are such as are already known to the senders.

Specimens would come, if loose, between 2 pieces of cork in an envelope.

George Lewis, 79 Upper Thames Street,
LONDON. ENG.

BULLETIN

—OF THE—

Brooklyn Entomological Society.

BROOKLYN, MARCH. 1879.

No. 11.

ON COLEOPTEROUS LARVÆ OF THE FAMILY OF TENEBRIONIDÆ.

BY C. F. GISSLER.

On page 18 of the Bulletin I have endeavoured to describe the larvæ of *Eleodes gigantea*, and *dentipes*. Since that time new material has been received and the occasion is now made use of to present additions to those observations as well as remarks on other larvæ.

I had occasion to study the larvæ of *Blaps*, *Tenebrio*, *Boletotherus*, *Eleodes*, *Gnathocerus*, *Platydemus*, *Tenebrionellus* and *Xylopinus*, and found, as already hinted to in No. 2 of Bulletin, that they are fair examples of the law of ontogenetical continuity of closely related animal forms, whose embryonic stages are nearly identical and scarcely if at all, differentiated. In both genera *Tenebrionellus* as well as *Eleodes* (fig. 15) the 1st post-embryonic stages are alike in the form of the pygidium.

To the latter I have paid more attention though it is liable to slight variations in larger individuals of *Blaps* and *Eleodes*.—

The larvæ of *Tenebrionidæ* in general closely resemble those of *Elateridæ*, the former differ in having the cardo of maxilla connate and a transverse impression immediately behind the clypeus, thus apparently separating the same from the front, and also by the better developed labrum.

Very young larvæ have their antennal joints more globular than older ones. In full grown larvæ of *Tenebrionidæ* the 1st joint of antenna is much shorter than the 2nd, its substance soft.

non-chitinized and retractile; its position is in a minute cavity which is surrounded by a semi-circular ridge.*

What I formerly called "penicilli" may be better termed "articulated spines". (fig. 4.) The integumental appendages of larval pygidia may be regarded as homologa of the dorsal parapoda of their ancestors, the Annelides.

In exuviations these organs are also cast off together with the bristles etc., of the entire integument. Their position and structure allow them to yield to slight pressure, but they are not coordinate by will since no muscular fibres could be found to move them. The terminal nerve-branches, arising from the 8th (last) abdominal ganglion, I was able to follow—in young individuals—not farther than to the two propellers.

Two very minute tubercles can be seen under higher microscopic power at the middle of base of pygidial tips in *Eleodes*. Whether they are orifices or not I cannot decide. The larger individuals of *Eleodes*-larvæ, when disturbed and handled, violently jerk their abdomen and spurt a turbid, odorless and watery liquid out of two lateral orifices situated under the tergal fold near the posterior margin of the 7th abdominal segment.

This organization is a peculiar adaptation to the larval body since the excretion of the repugnatorial gland in the imago is spurted out through the anal opening. The higher developement of this gland is certainly attained during the chrysalis-period.

The gibbosity of the 2nd (chitinized) antennal joint of *Blaps*, *Tenebrio* and *Eleodes* is in every case on the outer side of the joint.

But little attention has been paid to slight differences in the forms of maxillæ and maxillary palpi and for sake of comparison but two have been figured (fig. 2 and 15). The maxillary spines are in every case not articulated but deeply inserted into the mando of maxilla. The tips of maxillary palpi of *Boletotherus* is covered with what may be termed "sensitive aciculi" (fig. 16). The same are also on tips of labial palpi. A median canal runs through the tip of the maxillary palpus (which is lacking in labial palpus), and, though I could see no aperture, appears to indicate the seat of a sensitive bristle of the 1st post-embryonic stage.

* It is somewhat doubtful whether this soft, integumental process deserves to be called "joint," though Wm. R. Erichson describes the same as the first joint in the larva of *Tenebrio*. See *Archiv fuer Naturgeschichte*. 1841 p. 365.

Little attention has been paid to the sculpture of the pygidia in general: a few smooth spots are on pygidium of *Eleodes*, one on each side and one in the middle; one punctured spot on each side of *Tenebrio*; two excavations on each side in *Boletotherus* etc. Very probably these marks are peculiar to **species** and not to **genus**, which further investigations will show.—In living individuals of *Tenebrionidæ* larvæ the 4th antennal joint can be retracted into the 3rd joint to some degree and after death there is often only the tip of bristle visible sticking out of the 3rd joint.

Brief notes on pygidial differences.

Unfortunately I had access to but a few *Tenebrionidæ* the generic differences of which I point to the following, thus enabling the student to recognize the same.

Blaps mortisaga, *Fabr.* Number of articulated spines usually 12 lateral and 2 latero-terminal. Out of 10 individuals I had 2 with 16 in all, rest only 14.

Eleodes gigantea, *Mann.* and **E. dentipes**, *Esch.* Number of articulated spines usually 16 lateral and 2 latero-terminal. A number of either species (*gig.* and *dent.*) had only 16 in all. One individual had two articulated spines in one aperture, one had them assymmetrically placed, nine on one and eight on the other side.

Gnathocerus cornutus, *Fabr.* Tip minute; two comparatively long acinaciform processes a little behind the middle on each side. (length of larva 8 mm.)

Platydemus excavatum, *Say.* Four longer and four shorter articulated spines, tip very small, flat and cut off.

Tenebrionellus tenebrioides, *Beauv.* Nearly entire pygidium irregularly covered with articulated spines of three different lengths; tip round.

Xylopinus saperdioides, *Oliv.* Pygidium deeply punctured; two slightly diverging terminal, gradually turned-up hooks and one very minute articulated spine on each side at base of hooks.

Tenebrio obscurus, *Fabr.* Pygidium with median longitudinal groove, one lateral punctured notch and two terminal, small, suddenly turned-up hooks. Pygidium cordiform and comparatively small. Two minute articulated spines on each side a little behind the middle. Pygidial base very convex.

Boletotherus cornutus, *Fabr.* Pygidium without terminal

tip, very declivous: semi-circular with a pair of lateral large acinaciform and rugose processes, tips of which turned down and inward.

Supplementary notes. Maxillæ and maxillary palpi of XYLOPINUS as in Eleodes (fig 2.): molars of mandibles more fully developed, mentum elongate, narrowing towards tip, labrum sub-emarginate.

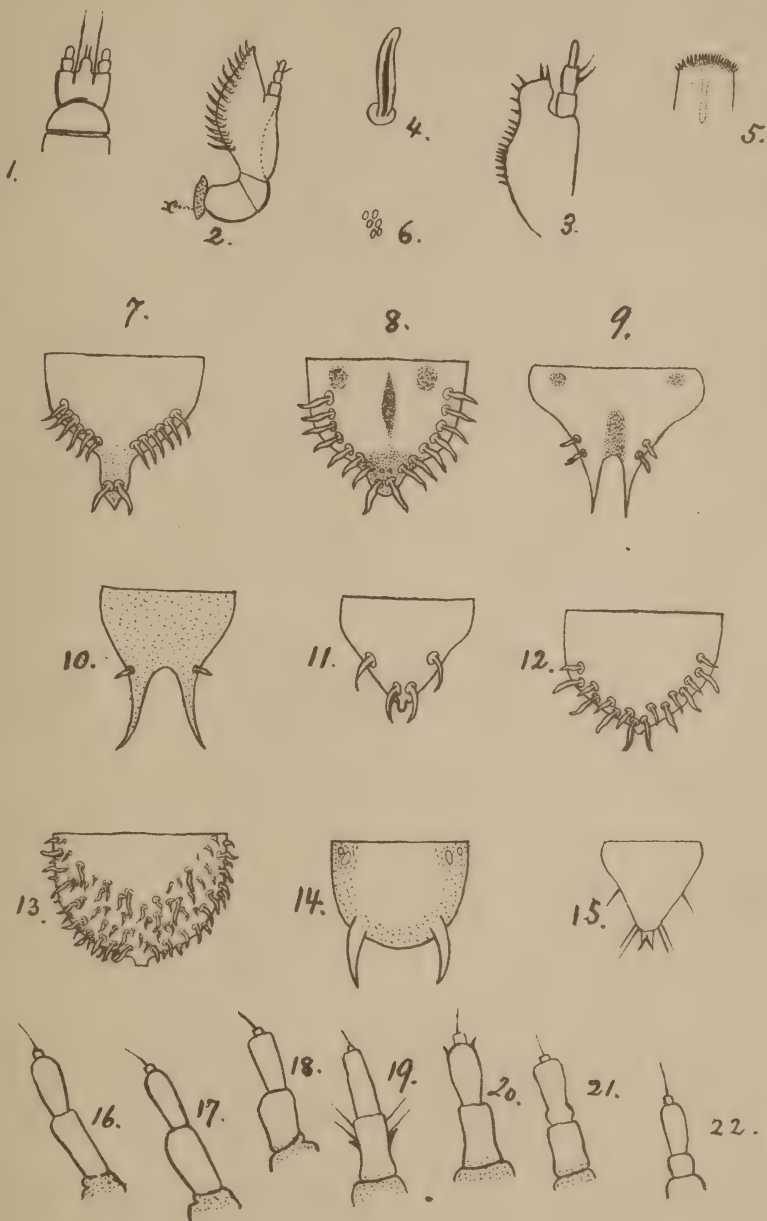
Maxillary palpi of TENEBRIONELLUS differ from Eleodes in being narrower at tip. Labrum emarginate, mentum oval and quite large.

Mentum and ligula of BOLETOTHERUS comparatively broader and shorter than in the other genera.

GNATHOCERUS has a pigment-spot on the ophthalmic region; second joint of maxillary palpus with a longer outer bristle, terminal (3d) joint of maxillary palpus longer than 1st and 2d joints and tapering toward tip. There is great resemblance in the antennæ (fig. 16-22), the remarkable exceptions are in Boletotherus (fig. 19) with 2 spines and 4 bristles at 2d joint and in Xylopinus (fig. 20) with 2 spines at tip of 3d joint. The antenna of Platydema is like that of Gnathocerus.

EXPLANATIONS TO FIGURES. **

- Figure. 1. Gular lobe, mentum, ligula and labial palpi of Eleodes.
 " 2. Maxilla and maxillary palpus of Eleodes. x-glandular lobe.
 " 3. Maxilla and maxillary palpus of Boletotherus.
 " 4. Articulated spine. Highly magnified
 " 5. Tip of maxillary palpus of Boletotherus.
 " 6. Natural size of Eleodes eggs.
 " 7. Pygidium of Blaps.
 " 8. " " Eleodes.
 " 9. " " Tenebrio.
 " 10. " " Xylopinus.
 " 11. " " Gnathocerus.
 " 12. " " Platydema.
 " 13. " " Tenebrionellus.
 " 14. " " Boletotherus.
 " 15. " " Eleodes shortly after hatching. magn. 60x
 " 16. Antenna of Eleodes.
 " 17. " " Blaps.
 " 18. " " Tenebrio.
 " 19. " " Boletotherus.
 " 20. " " Xylopinus.
 " 21. " " Tenebrionellus.
 " 22. " " Gnathocerus.



SYNOPTIC TABLE OF LEPIDOPTERA.

GENUS COLIAS *Fab.*

6. *C. Edwardsii*, *Behr.* Very close to *Alexandra*, but the costal edge and apical part of fringes on the upperside of primaries, and the costal edges of both wings on the underside are roseate, and the discal spot on underside of secondaries is pearly, edged with rosy scales. Expands $2\frac{1}{8}$ to $2\frac{3}{8}$ inches.—Utah. This may prove to be a variety of *Alexandra*.

7. *C. Emilia*, *W. H. Edwards.* Male; bright lemon yellow; narrow black borders cut to the edge by yellow nervures; discal spot of primaries small, yellow, subovate, edged with black, absent on secondaries. Underside of primaries same yellow at base, paler elsewhere, of secondaries tinted buff, densely powdered with black; discal spot small, pearly in pink ring. Female; paler; border on primaries indefinite, on secondaries wanting; discal spot on primaries large, black, on secondaries pale orange; underside same as male. The fore wings are longer and more pointed than in *Alexandra*. Expands about 2 inches.—Oregon.

This species is also close to *Alexandra*, and may prove but a variety.

8. *C. Laurentina*, *Scudder.* Male; lemon yellow, border black, broad; discal spot of primaries small, subovate, orange in fine black ring, of secondaries large, white with pink scales, in broad, pale ferruginous border. Female; either yellow or whitish (say greenish white), border slighter, limited to apex and upper part of hind margin, with yellow patches not fully enclosed; discal spot of primaries like male, but larger [on the white ones paler], of secondaries orange [on white ones cream color]; both discal spots with considerable pink. Expands $1\frac{1}{2}$ to $1\frac{7}{8}$ inches.—Cape Breton Island, Quebec, Maine.

9. *C. Chrysomelas*, *Henry Edwards.* Male; upperside bright citron yellow with broad black borders; discal spot on primaries small, on secondaries from orange to obsolete; underside of primaries orange, lemon yellow on inner margin, of secondaries orange powdered with black scales; discal spot on secondaries red surrounded with brown, often duplex. Female; paler colored; borders broad, paler, with inclusive yellow patches; underside paler; discal spot less red. Expands 2 to $2\frac{1}{4}$ inches.—California.

10. *C. Barbara*, *Henry Edwards.* Male; unknown; Female; upperside bright canary yellow; border black, slight; discal spot small, ovate, deep yellow in black ring, of secondaries pale orange. Underside lemon yellow; secondaries powdered with black, giving a greenish appearance; discal spot large, circular, clear white in brownish ring and duplex. Expands 2 inches.—California.

11. *C. Eriphyle*, *W. H. Edwards.* Male; canary yellow; borders pale black dusted with yellow, on inner margin of primaries pale yellow; discal

spot of secondaries either pearly white with a few pink scales, or strongly roseate, ringed by ferruginous, sometimes duplex. Female; same yellow. discal spot as in male; underside either deep yellow or pale greenish, white, much dusted; discal spot as in male. Expands $1\frac{1}{8}$ to 2 inches.—British Columbia.

12. C. Interior, Scudder. Male; color pale brown yellow; borders black; discal spot of primaries double, convex, small, black, but often denuded of the black, and then an orange spot appears; of secondaries large, orange, either pale or deep colored; fringes pale rose, mingled with yellow on whole of secondaries and at inner angle of primaries; underside of primaries same shade as upper, but deeper yellow near apical area, of secondaries yellow, from light to deep colored, very much as in *Philodice*; both wings immaculate except for a few brown scales at outer angle of secondaries; discal spot of primaries orange, edged with black; of secondaries large, either pearl white with a roseate outer edge, or wholly pale roseate, surrounded by a ferruginous ring, and sometimes this by a paler ring. Female; same size and color as male; primaries have a blackish border to apex and hind margin; secondaries none; discal spots as in male. Below primaries as in male, and discal spots of both as in male. Expands $1\frac{1}{8}$ to 2 inches.—Habitat British America, Ontario, Quebec, Alaska.

13. C. Christina, W. H. Edwards. Male; upperside, ground color bright yellow with large orange patches on the disks; borders broad, black, covered by yellow nervures; discal spot of primaries small and black, of secondaries large, deep orange; underside of primaries same as upperside, but sometimes paler, of secondaries greenish, covered uniformly with fine black scales; discal spot of primaries as on upperside, of secondaries silver white circled by reddish brown. Female; upperside pale greenish yellow, without a border; discal spots as in male; underside pale and immaculate, excepting the discal spots; the basal half of primaries brownish yellow otherwise like the male; fringes rose red. Expands from 2 to $2\frac{1}{2}$ inches. Habitat British America, Great Slave Lake, Athabasca.

14, C. Pelidne, B'del. Male; upperside pale yellow with a greenish tinge to secondaries; body and base of wings black; discal spots very faint; borders black, yellow at the veins, terminating on secondaries a little short of the anal angle; underside of primaries pale yellow; discal spot black; of secondaries greenish; discal spot white edged with red. Female; upperside dirty white with a pure white discal spot on secondaries; border on primaries very faint, smoky, sometimes almost entirely wanting; underside, primaries white, yellow at apex; discal spot subovate, white in fine black ring; secondaries greenish yellow; discal spot white circled with red; fringes and antennæ of both sexes pink. Expands $1\frac{1}{8}$ to $1\frac{7}{8}$ inches. Habitat Labrador, Alaska.

Notes on *Samia Cynthia*.

A few weeks since, I found more than a dozen undoubted cocoons of *Samia Cynthia* upon Tulip trees, so situated as to make it certain that the larvae had lived upon the trees as their food plant; during the summer I found the larvae feeding upon the Sassafras. Apart from these, and the *Ailanthus* the ordinary food plant—I have never known the *Cynthia* of its own accord to choose any of our many shrubs or trees for food. It is certainly interesting, that the only indigenous trees which *Cynthia* has taken as food plants, (both widely differing from the *Ailanthus*, and each other), should be what here are the common food plants of its very near relatives *Callisomia Angulifera* and *Promethea*. It would seem that something more than mere circumstance had to do with the choice. Taken in connection with the strong tendency of these species to mate with one another, it is likely they are so nearly allied that a generic distinction is not warranted. When the present fever of genus making has run its course, *Cynthia*, *Promethea*, and *Cecropia* will but typify groups of one genus.

GEO. D. HULST.

Notes on some species of *Thecla*.

On comparing a female *Thecla behrii*, Edw. with a male *T. kali*, Strecker I find the species to be identical, and the only difference is in the size, which is however not greater than in the sexes of allied species.

Mr. Strecker, in his Catalogue of Butterflies, (p. 90) states that *T. behrii* is unknown to him in nature, which explains his redescription of Mr. Edwards species.

On page 89 of the same work, Mr. Strecker states *T. siva*, Edw. is perhaps identical with *T. damon*, Cram (*smilacis* Boisd.) which assertion I am sure he would not have made had he seen *T. siva* in nature.

T. siva is very unlike *damon*, and is very close to *T. dumetorum* Boisd. The only differences I find between them (I have but one male *siva*) are that in *dumetorum* the exterior margins of the posteriors are slightly dentated while in *siva* they are entire.

On the underside, the faint crescents of white near the exterior margin of the posteriors in *siva* are bordered above with black, which latter is absent in *dumetorum*.

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BULLETIN
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Brooklyn Entomological Society.

BROOKLYN, APRIL. 1879.

No. 12.

On *Acronycta Walkeri*, and *Orthosia lutosa*, *Andrews*.

On page 98 vol. 9, Canadian Entomologist, the late Mr. W. V. Andrews described a new species of *Acronycta*, as *A. Walkeri*.

Through the courtesy of Mr. John Akhurst (who has acquired the collection of the deceased) I was enabled to see the types of *A. Walkeri*, and *Orthosia lutosa*, described in the same article.

I discovered his *A. Walkeri* to be identical with *A. alborufa*, Grote, which latter has the priority, being published in the Proc. Boston Soc. Nat. Hist. 1874, p. 239, while Andrews description of *A. Walkeri* was not published until 1878.

The other species *Orthosia lutosa* is a good species unless it eventually proves to be one of Walkers species, whose types are contained in the British Museum. I have sent specimens of *O. lutosa* to London for identification and will report later.

Both species occur on Long Island.

EDW. L. GRAEF.

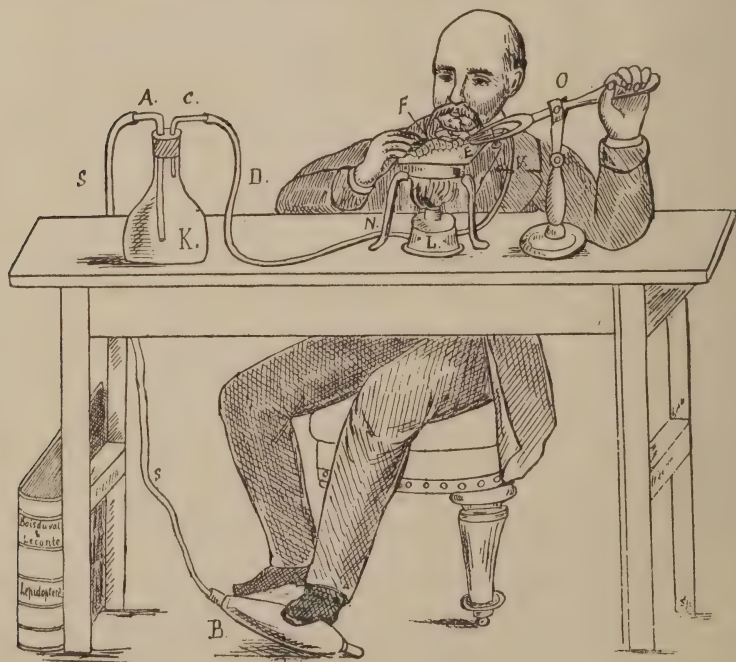
A new and practical apparatus for preparing larvae and pupae, especially of *Lepidoptera* has been described in *Dr. Katter's Entomologische Nachrichten* 1879, vol. V. p. 7, of which the following is an extract.

In preparing larvæ of insects for Entomological collections several methods have been used. The simplest and most common of these is: Empty the larva by slight pressure and introduce a straw into the anus and blow in air holding it over an alcohol lamp until it is fully expanded and dried.

This method has two great faults; first, that only one hand can be employed to give the larva the required shape, as the other is occupied in holding the straw while blowing in the air: second, that the last ventral segment, so characteristic in many larva is spoiled by the insertion of the straw.

Recently Mr. Fritz A. Wachtel has constructed an apparatus, which we think will work excellently. It consists of bottle **K** tightly closed by a cork or rubber. Two rectangularly bent glass tubes pass through this cork, the one **A** having a larger diameter, is connected by the rubber tube **S**, with the rubber bellows **B**, the smaller one **C** connects by the rubber tube **D** with a fine pointed glass tube **E**, on which the larva-skin **F** is secured. The glass tube is held by the stand **O**, which allows vertical and horizontal movements thereby facilitating the approach of the larva to the heated metal plate that rest upon the tripod **N**, under which is placed the gas or alcohol lamp **L**.

The bellows are worked by the foot and the air passing through the rubber tube **S** and the glass pipe **A** is compressed in the bottle by reason of the smaller diameter of the exit pipe **C**, caus-



ing a continuous and uniform current of air, which can be still further controlled by opening or closing the cock **V**.

If it is desired to introduce warm air into the larval skin, the bottle **K** may be placed upon a sand-bath.

The size and fineness of the point of the glass pipe **E** upon which the larval skin is secured depends upon the size of the larva, therefore several sizes of them should be ready.

To fasten the skin upon the glass point wind a common insect pin around the glass, bend it along the pipe and make a small hook of the pin point see fig. 2. or bind with thread two springs to the



pipe fig. 3., have them bent rectangularly at the end and the tip fitted to the pipe fig. 4.

Large larvæ can be prepared in from four to six minutes, middle sized from two to four minutes, and very small ones from one to two minutes.

H. SALTZWEDEL.

On Synonymical and Varietal Names.

Mr. Austin in his Presidential address "*Psyche*, March 1879 p. 223," protests against the tendency "sprung up recently," of ignoring variations and regarding as synonyms the names under which they have been described.

The majority of collectors will find with me the "tendency," against which Mr. Austin protests very praiseworthy and meritorious; it did not however, spring up so very recently; our greatest contemporaneous American Entomologist, Dr. Leconte himself did the same thing a long time ago.

Take for inst. his *Monograph on Pasimachus*, *Ann. Lyc. Nat. Hist. N. Y.* 1848, where you find **twelve** species, which Leconte himself reduced in his *notes on Pasimachus*, *Bull. Buff. Soc.*, Jan. 1874, p. 266, to **seven**, regarding the remaining five as variations,

He says page 268:

"This species (*P. sublævis*) varies in size and sculpture and there is every intermediate grade between the type to the smooth and more shining *substriatus*. These intermediate forms were describ-

ed by me as *rugosus* and *assimilis* the former being an individual variation."

Now of course there were some differences between the former 12 species, which however disappeared like snow in summer in the large serial collection Dr. Leconte now possesses.

When I said the majority of collectors will be pleased by a reduction of names rather than by an increase, let us see, who cuts down the superfluous names.

Those who pursue the study of specific differences most thoroughly and possess the largest collections from the greatest number of localities, these not only **advocate** the reduction, but show their faith by the unloading of useless names!

In regard to the retention of varietal names Mr. Austin's attention might be drawn to the synonymy of *Rhipiphorus pectinatus*,* in which fifteen names occur, each of which applies to some color variety! Shall such names as these be allowed to burden our books and memories?

Synonyms are as useless as a scaffolding after the house is built and fully as much an eyesore.

It is difficult to define what precisely constitutes a species just now in this genus-making age.

A specimen exhibiting some marked differences from a known species is no new species but quickly elevated to the rank of a genus!

Quousque tandem, Catilina etc.,?!

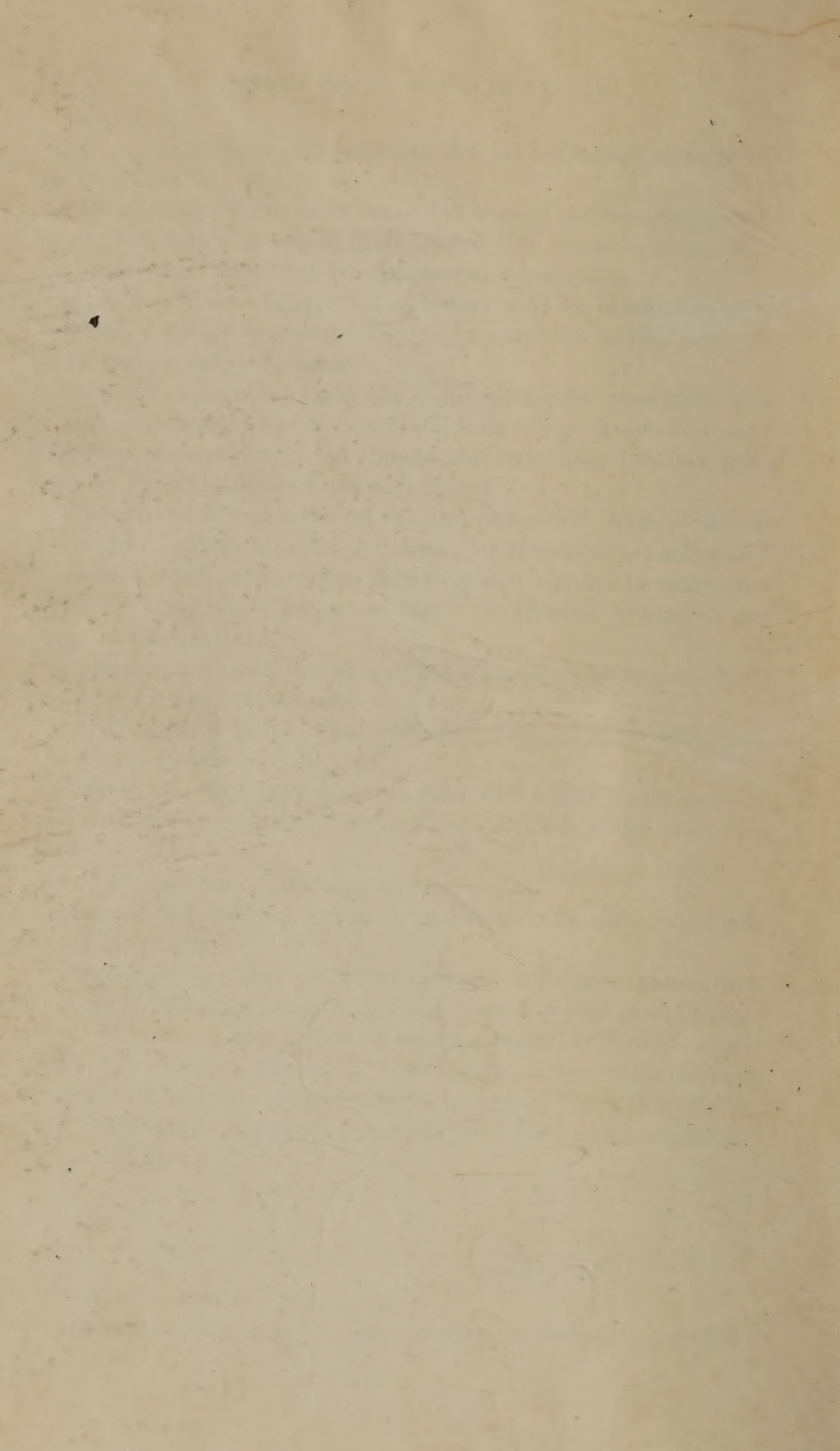
I cannot close without citing what Dr. Leconte says Bull. Buff. Soc. 1874, p. 266.

"Among the crude results of my earlier studies was a monograph of the genus *Pasimachus*; being then inexperienced in the recognition of species, I was, like most young naturalists** led to exaggerate the value of characters which were either individual or unimportant and thus to multiply the supposed distinct forms beyond what larger series of specimens have shown to be tenable."

Sapienti sat.

* *Trans. Am. Ent. Soc.* 1875, p. 124.

** And a very great many old ones including the modest.....Editor



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